

University of Louisville

ThinkIR: The University of Louisville's Institutional Repository

Electronic Theses and Dissertations

5-2005

Housing tenure choice of immigrants in the United States.

Zhenfeng Pan 1974-
University of Louisville

Follow this and additional works at: <https://ir.library.louisville.edu/etd>

Recommended Citation

Pan, Zhenfeng 1974-, "Housing tenure choice of immigrants in the United States." (2005). *Electronic Theses and Dissertations*. Paper 1091.
<https://doi.org/10.18297/etd/1091>

This Doctoral Dissertation is brought to you for free and open access by ThinkIR: The University of Louisville's Institutional Repository. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of ThinkIR: The University of Louisville's Institutional Repository. This title appears here courtesy of the author, who has retained all other copyrights. For more information, please contact thinkir@louisville.edu.

HOUSING TENURE CHOICE OF IMMIGRANTS IN THE UNITED STATES

By

Zhenfeng Pan

B.A. Zhengzhou University, 1996

M.A. University of Louisville, 1999

A Dissertation

Submitted to the Faculty of the
Graduate School of the University of Louisville
In Partial Fulfillment of the Requirements
for the Degree of

Doctor of Philosophy

School of Urban and Public Affairs
University of Louisville
Louisville, Kentucky

May, 2005

Copyright 2005 by Zhenfeng Pan

All Rights Reserved

HOUSING TENURE CHOICE OF IMMIGRANTS IN THE UNITED STATES

By

Zhenfeng Pan
B.A. Zhengzhou University, 1996
M.A. University of Louisville, 1999

A Dissertation Approved on

February 2, 2004

by the Following Dissertation Committee:

Dissertation Chair

DEDICATION

This dissertation is dedicated to humanity.

ACKNOWLEDGEMENTS

I would like to thank God for his blessing.

ABSTRACT

IMMIGRANT HOUSING TENURE CHOICE IN THE UNITED STATES

Zhenfeng Pan

February 2, 2005

While housing tenure choice by the general population and minorities has been studied by a good number of researchers, current research on the tenure choice by immigrants has been limited and sporadic. This study provides further understanding of the immigrant households' housing tenure choice. Using Public Use Microdata files from the 2000 U.S. census, this study makes a number of methodological improvements to model the predictors of homeownership among the immigrants from 10 countries. The housing tenure choice predictors of immigrant households are also compared to those of the native-born counterparts to illustrate the differences in the factors affecting housing tenure choice. Overall this study finds that the housing tenure choice behaviors of immigrants are not only different from native-born citizens, but also different across country of origin. Furthermore, U.S. citizenship seems to play a key role in determining housing tenure choice among immigrants. Some tentative policy recommendations are also provided in the final chapter based on the findings.

TABLE OF CONTENTS

	PAGE
ACKNOWLEDGEMENTS.....	iv
ABSTRACT.....	v
LIST OF TABLES.....	vii
LIST OF FIGURES.....	viii
CHAPTER	
I. INTRODUCTION.....	1
II. LITERATURE REVIEW.....	13
III. HYPOTHESIS.....	45
IV. METHODS.....	49
V. FINDINGS.....	74
VI. SUMMARY AND CONCLUSIONS.....	97
REFERENCES.....	107
CURRICULUM VITAE.....	113

LIST OF TABLES

TABLE	PAGE
1. Descriptive Statistics for Immigrants from Different Country of Origin.....	62
2. Descriptive Statistics for Immigrants, Native-Born and Combined Samples.....	63
3. Homeownership Rate and Relative Cost Ratio Variables.....	68
4. Logit Models of Factors Affecting Housing Tenure Choice.....	77
5. Logit Models of Factors Affecting Housing Tenure Choice.....	81
6. Logit Models of Factors Affecting Housing Tenure Choice.....	83
7. Exploratory Analysis for Hypothesis III.....	87
8. Exploratory Analysis for Hypothesis III.....	89

LIST OF FIGURES

FIGURE	PAGE
1. Historical Foreign-Born Population in the United States 1860-2003.....	2
2. Population Change in Select Metropolitan Areas 1990-2000.....	4
3. Historical Homeownership Rate in the U.S. 1965-2003.....	14
4. U.S. Homeownership Rate by Region in 2000.....	16

CHAPTER I

INTRODUCTION

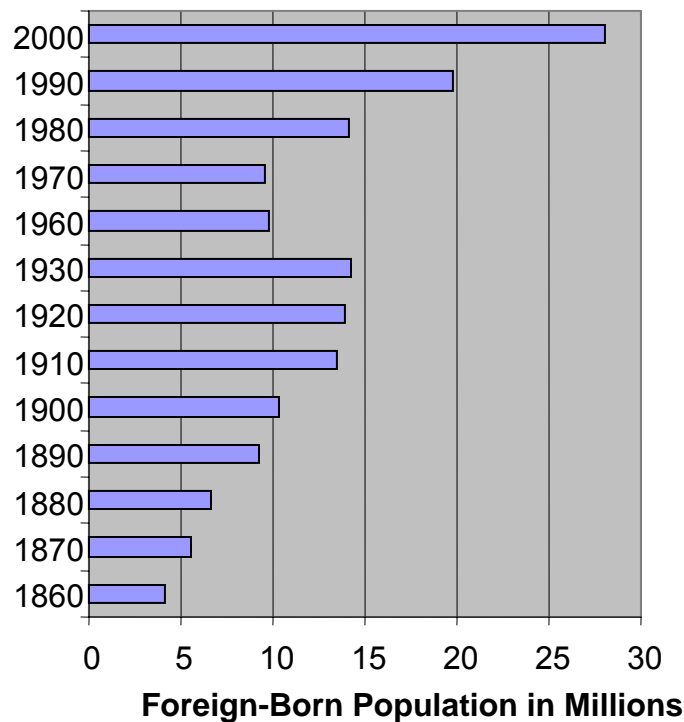
Immigration, immigrant life, and immigrant housing tenure choice

This dissertation is a study of housing tenure choice by immigrant households in the United States. The first chapter provides brief background information about U.S. immigration, life of immigrants, their housing situation, the impact of affordable housing policy on immigrants, the need to study housing tenure choice, and the framework of this study.

A. U.S. immigration in brief

There is extensive literature on immigrants and immigration because the United States has been the major destination of international immigration for centuries. According to the U.S. Census Bureau, the decennial number of immigrants entering the United States since 1850 has enjoyed rapid increase every 10-year period until the 1930s (see Figure 1). Probably due to the interruption of World War II, the number of foreign-born population present in the United States suffered a significant drop during the 1950s and 1960s. During the 1970s and 1980s, the speed of immigration seemed to pick up dramatically from the lows in the previous decades. From 1980 to 1990, the U.S. census suggests that 19.8 million foreign-born immigrants were present in the country.

Figure 1. Historical Foreign-Born Population in the United States 1860-2000



Data Source: U.S. Census.¹

Compared to previous decades, the economic expansion in the United States during the 1990s was accompanied by record immigration levels. According to a focused study of immigration by Martin (2003), about 15 million more immigrants settled in the United States during the 1990-2000 decade. This prompted Martin to claim that if we “factor in their children and the generally higher fertility rates among immigrant groups, this single factor accounts, conservatively, for more than half the astounding 35 million increase in U.S. population in the 1990s.” To further illustrate the extent of U.S. immigration and its impact, it is best to quote Martin’s summary of the situation:

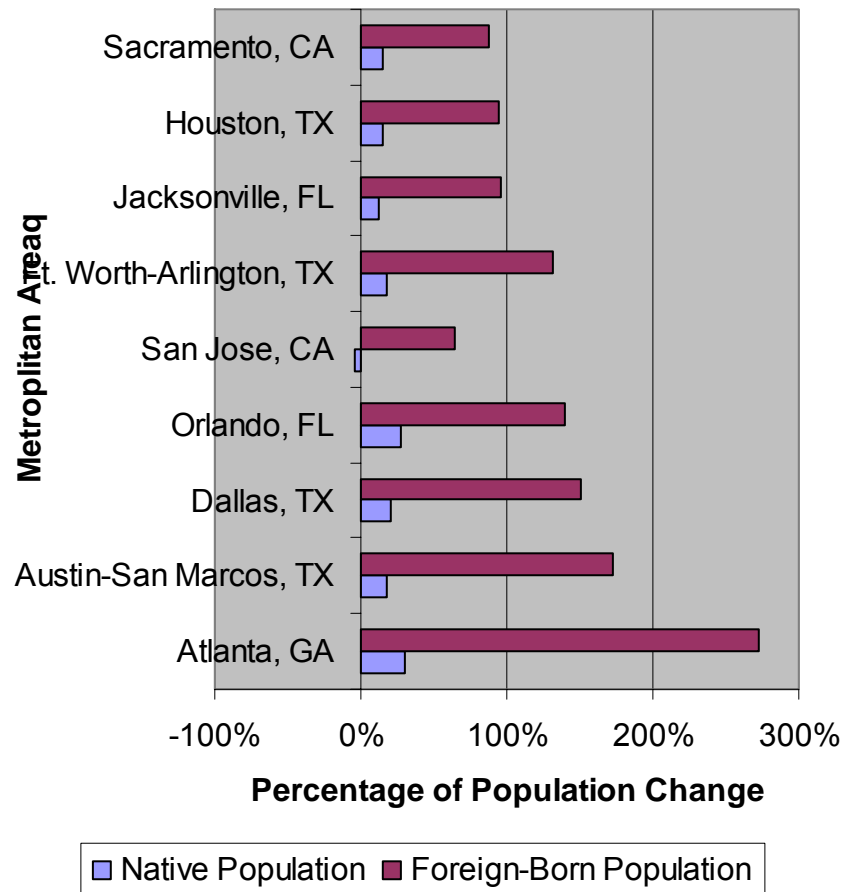
¹ Detail source: <http://www.census.gov/population/www/documentation/twps0029/twps0029.html>. Year 2000 number comes out of March 2000 population survey done by the Census Bureau.

Immigration increased at more than six times the rate of increase for the native-born population. Nationwide, population increased by 13 percent over the 1990s. However, when the components of that increase are analyzed, it can be seen that the immigrant population¹ increased 57.4 percent (from 19.8 million to 31.1 million), while the native-born population increased 9.3 percent (from 229.1 million to 250.3 million)....This division of the increase in the population identifies immigration as being directly responsible for more than one-third (35%) of the country's population increase during the 1990s. The most recent estimate by the Census Bureau indicates that, since the start of the new century, immigration is accounting for almost half (44%) of the population increase, ² without taking into account the additional impact resulting from the children born to immigrants after they arrive....If (the U.S.) immigration policies remain unchanged, Census Bureau projections show that immigration will account for two-thirds of the staggering 135 million additional residents projected to be added our population during the first half of this century....Immigration at these levels has a significant impact on a variety of pressing national issues, such as school overcrowding, bankrupt public health care systems, the alarming number of children living in poverty, and deteriorating or inadequate infrastructure.

Spatially, the distribution of immigrants is very uneven across the country. In fact, the study by Martin (2003) further reveals that most immigrants concentrate in large metropolitan areas. As a result, they have become the driver for population growth in many metropolitan areas in states such as California, Texas, and Florida. As Figure 2 shows, some metropolitan areas experienced a dramatic increase in immigrant population, while the native-born population only showed modest increase. In Atlanta, Georgia, for instance, native population increased 30 percent from 1990 to 2000. During the same period, foreign-born population increased 273 percent. In Dallas, Texas, native population increased only 20 percent from 1990 to 2000, while foreign-born population increased 150 percent. Note that the increase in immigrant population is not just restricted to large metropolitan areas. Defining this phenomenon as “urban bloat”, Martin (2003)

indicates that accelerated immigration has a similar impact on some smaller metropolitan areas.

Figure 2. Population Change in Select Metropolitan Areas 1990-2000



Data Source: U.S. Census Summary File 3 (SF3).

Indeed, historical and recent immigration in the United States have and will continue to impact society in many ways. There is no sign that the United States intends to change its welcome stance on international immigration, although the stricter screening process has driven many potential immigrants into other countries after the September 11

attack in New York. The large immigrant population and continuing immigration make it even more important to study various aspects of immigration and immigrant behaviors in order to provide foundational knowledge for future policies.

B. The life of immigrants

There are two kinds of immigrants: legal and illegal. Legal immigrants are those who came to the United States with valid visas and have since maintained the legal right to stay in the United States on a nonimmigration or immigration basis. Illegal immigrants refer to those who came to the United States through illegal means such as fake passports or illegal crossing of borders, or those who came with valid visas but later failed to maintain the legal right to continue their stay in the country. Illegal immigrants have been present in the United States throughout immigration history. However, recent immigration laws enacted by President Clinton in the 1990s made it very difficult for illegal immigrants to ever “correct” their illegal status, thus making most of these immigrants permanently illegal.

Legal or not, early immigrants before the 1960s suffered severe institutionalized discriminations along with blacks and other minorities before various civil rights movements brought about many laws that banned overt discrimination and segregation. However, improvement in legal rights often only provides “theoretical” enhancement of status, while practical obstacles remain formidable for many immigrants. Facing unfamiliar and sometimes even hostile environments in a foreign country, new immigrants have to deal with conflicting social and cultural demands. For immigrants from countries that have a completely different linguistic system, communication is

frequently one of the biggest problems for them. Although some immigrants came to the United States with their already-made wealth, most young immigrants came with very little money, hoping that in the land of freedom, they will somehow make it and settle down.

Even when language and finance are not the problems facing some immigrants, they can rarely escape the working of other factors such as prejudice and immigration regulations. Symbols of ethnicity such as language, religion, and way of life often serve as reminders of their origin and create solidarity among specific ethnicities. They are, at the same time, the markings that show them as outsiders in the new country. Few can escape frequent prejudice and discrimination in subtle or even open forms, although various laws have rendered most blatant discrimination illegal. To make life even harder, most new immigrants are under the tight control of numerous and forever-changing immigration laws that regulate every step in their assimilation and upward movement in the U.S. economy and society. Foreign students, for example, are not allowed to accept employment off campus without a lengthy application and authorization process. Businesses face enormous fines if they offer employment to immigrants without authorization from the Immigration and Nationalization Service, now a branch within the Department of Homeland Security.

To summarize, immigrants, especially newly arrived immigrants and illegal immigrants, often have to face particular language, social, cultural, financial, and legal problems, as well as prejudice and discrimination when trying to settle down in the United States. These unique problems have been documented, showing that they

seriously impede the social and economic advancement of immigrants, thus making it difficult for them to be assimilated into U.S. society.

C. The housing situation of immigrants

Homeownership has always been part of the American dream because it provides not only a shelter, but also a great place to raise children, a sense of identity and pride, and an investment for the future. Most of the current housing tenure choice research assumes that renting is only a temporary choice, while homeownership is the eventual goal in life. That goal is constrained by affordability of homeownership; access to the housing market; mobility of occupation; and other cultural, societal, and/or financial factors.

According to the July 2003 publication by the Center for Housing Policy, the United States has 2.2 million immigrant families with critical housing needs, which are defined as either spending more than 50 percent of income on housing or living in seriously substandard housing. Among the 2.2 million families, 20.7 percent are nonworking elderly immigrants and 52.5 percent are low- to moderate-income working families. At the same time, about 12 million native-born families also have critical housing needs. However, this number can be misleading as the research indicates that while only one in seven native-born families have critical housing needs, one in five immigrant families have critical housing needs.

The same research further indicates that compared to native-born low- to moderate-income working families, immigrant families with critical housing needs are

more likely to live in expensive areas, thus making the purchase power of their income even lower. In addition, immigrant families are more likely to have an income below 50 percent of local median and less likely to be homeowners. While 55.4 percent of native-born families with critical housing needs do own their owner-occupied homes, only 45.4 percent of immigrant families with critical housing needs own their own homes, a full 10 percentage points lower.

Housing problems for immigrants are more than just homeownership rate. In the same research published by the Center for Housing Policy, statistics indicate that there is also a big difference in terms of crowding within a house between native-born families and immigrant families. The report indicates that using the standard of more than one person per room per residence, immigrant families are six times more likely to live in crowded homes, either in owner-occupied houses or rented apartments/homes. Furthermore, nearly 60 percent of working immigrant families with critical housing needs are either from Mexico or elsewhere in Latin America, implying that some immigrant groups in need of housing are in much worse shape than others.

D. The impact of affordable housing policy

The U.S. Department of Housing and Urban Development (HUD) has long made part of its mission to help communities across America identify and overcome regulatory barriers that impede the availability of affordable housing. It is the belief of HUD that through the removal of burdensome regulatory barriers we can open more doors to hard-working American families who wish to buy or rent an affordable home in the community of their choice. Although the overall objective is to make housing more

affordable to all citizens within the United States, this policy is especially important for minorities and immigrants who historically have always had a lower homeownership rate.

Evidence from recent research indicates that many of the affordable housing policies have not been very successful, partly because housing prices and access to housing are affected by a whole array of policies from the federal, state, and local governments. Any small change at the local level or in some minor aspects of the overall housing policies can only have a very small impact on homeownership. Recent attempts to increase housing affordability include substantial direct and indirect subsidies, provision of public housing, housing vouchers, and subsidies to landlords and developers.

In an “*Affordable Housing Policy Review document*” released in February of 2002 by the National Housing Conference, the overall affordable housing policy was carefully assessed in a fair and balanced approach. The document rightly contends that to ensure sustainable affordable housing over a long period of time, lenders and investors must try to achieve a number of objectives such as: affordable housing should be managed by professional organizations with adequate access to capital; housing should be truly affordable for its actual residents; housing should be located in a viable neighborhood and should fit in the neighborhood; housing should have an attractive, low-maintenance design and be physically sound over the long term.

Indeed, providing affordable housing for low-income families, especially minority and immigrant families, is a very complex project. The task of increasing homeownership for immigrant families is far beyond the constraint of some key socioeconomic variables because of the cultural, language, financial, and legal problems

all newly arrived immigrants must cope with. This study argues that part of the reason for the failure of many affordable housing policies may be attributable to the lack of understanding of housing tenure choice by low-income households, many of which are immigrant households. As some researchers such as Henderson and Ioannides (1986) have suggested, simply increasing income and availability of housing to these households may not be adequate in terms of increasing their homeownership rate, because homeownership is also affected by a number of other factors including values, preferences, and market imperfections.

E. The need to study housing tenure choice by immigrants

There has been a good deal of research on housing tenure choice in the past 15 years on the general population and ethnic minorities. However, housing tenure choice of immigrants is only sporadically studied. As mentioned in previous sections, the explosive increase in immigration in the last few decades and the continuing trend in the coming decades simply mean that the immigrant population in the United States is already very large and will become larger. Housing, as one of the most basic needs of human existence, is essential for immigrants who wish to eventually settle down in the United States.

There are several important reasons why more study of housing tenure choice by immigrants or their housing situation in general is needed. First, further understanding of housing tenure choice will provide crucial insight into the behavior of immigrants, thus providing more information for immigration policymakers who are responsible for

regulating future immigration. Second, insight into housing tenure choice by immigrants will help the most recent affordable housing policy that has been struggling to achieve its objectives. Since in general a higher percentage of immigrant families do not own homes, more understanding of housing tenure choice by immigrants may potentially help draft policy initiatives to boost homeownership rates among immigrant families. Third, more study of housing tenure choice by immigrants can indirectly bring about more social equality because the potential increase in homeownership among immigrants can further bridge the socioeconomic gap between immigrant families and native-born families. Fourth, the understanding of housing tenure choice by immigrants is important for the healthy growth of the U.S. housing market as a whole. U.S. census data suggests that in 2000, the homeownership rate has reached 67 percent for the overall population. If the lower homeownership rate among immigrant families is discounted from the total population, the actual native-born families' homeownership rate is even higher than 67 percent. Since owning homes is impractical for some people with highly mobile professions or some people who are simply too young to even need a home, the potential for huge increase in homeownership rate among the overall population is not very likely, at least percentage wise. Actually most home sales in the past few decades have been consumed not by overall homeownership rate increase, but by population growth, which is fueled mostly by immigration. Therefore understanding and increasing homeownership among immigrants will certainly contribute to the healthy growth of the housing market, where most of this country's wealth is concentrated.

F. The structure of this study

Due to the scope and limitation of the dissertation, this study intends to focus on immigrant population from a number of countries to explore the predictors of homeownership among them. Using a series of logistic regression models, the differences in factors affecting homeownership between the immigrant groups and the U.S. population will also be explored. The next chapter will provide a brief literature review of housing tenure studies and then some hypotheses will be developed based on the literature review in the following chapter. In the methodology chapter, details regarding the data, sampling, variable selection/calculation, and analytical techniques will be provided. After discussion of the findings, the final chapter will provide some conclusions and policy recommendations based on the findings.

CHAPTER II

LITERATURE REVIEW

Immigrant housing and current housing tenure choice research

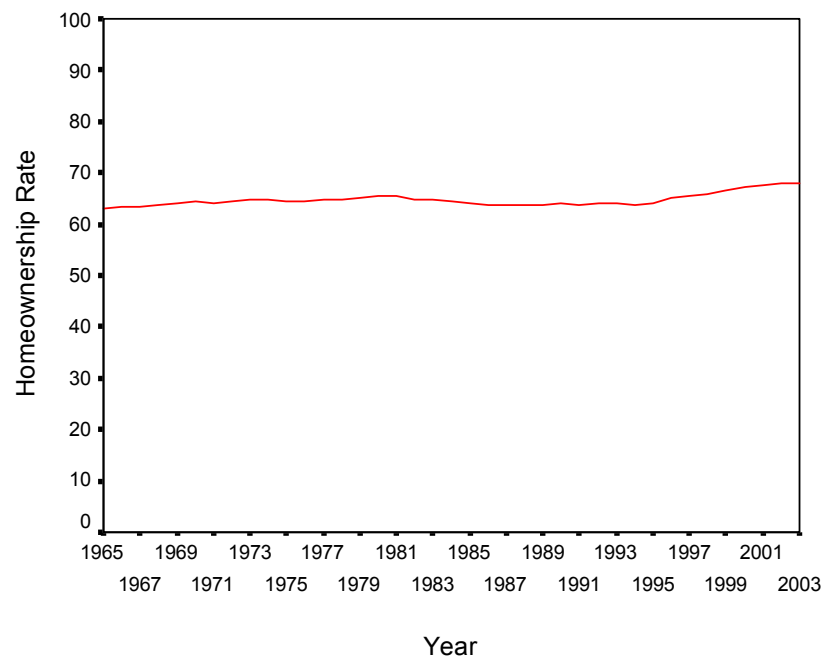
In this chapter, the relevant literature on housing tenure choice is reviewed. Although there is a very large amount of literature on housing in general, research on housing tenure choice has been limited and is fairly recent. This chapter will first review the general housing situations of immigrants in the United States. Housing tenure choice research on the general population and immigrant population is also reviewed before a critique of the literature is provided.

A. Housing situation of immigrants compared to native-born citizens

Historically, homeownership rates in the United States have not changed dramatically, at least in nearly 40 years. As Figure 3 shows, in 1965, homeownership rate was 62.9 percent, at a level that was actually quite high. Then homeownership rate fluctuated, along with the economy, between 64 and 66 percent for over two decades before the historical economic expansion in the 1990s made it possible for homeownership to reach levels above 66 percent. This chart suggests that

homeownership may have a specific range between which it normally fluctuates, implying that the continually increasing home supplies during the past several decades has been consumed mostly by increase in overall population, while homeownership rate did not change drastically.

Figure 3. Historical Homeownership Rate in the U.S. 1965-2003



Data Source: U.S. Census Bureau².

Census data in 2000 further suggests that in 2000 homeownership in the United States was about 67 percent. By 2003, the rate had climbed another percentage point to 68.3 percent. However, in a Current Housing Reports released by the Census Bureau in

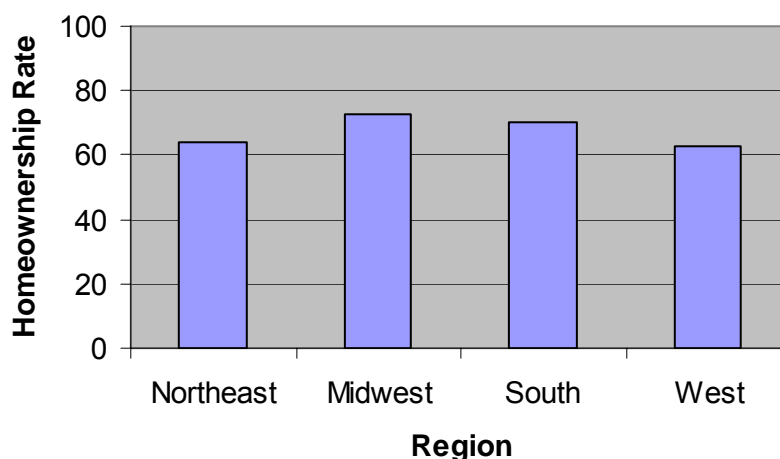
² Detailed source: <http://www.census.gov/hhes/www/housing/census/historic/owner.html>. 1965 is the first year from which homeownership rate is plotted on the graph.

1997, the statistics suggest that among non-citizens/immigrants, those who entered this country before 1970 had a higher homeownership rate at 61.1 percent. Those non-citizens who entered in 1970 or later had a homeownership rate at around 29.4 percent, only half of the homeownership rate of those who had been in the United States for 27 years or more. The research indicates that overall, the homeownership rate in 1996 was about the same for native-born citizens and foreign-born citizens, with younger immigrants showing a particularly slower pace in achieving homeownership.

In a 2003 report titled “Moving to America—Moving to Homeownership: 1994-2002,” the Census Bureau reports that a slightly higher proportion of black naturalized citizen householders owned their homes compared to native-born counterparts. However, naturalized Asians and Pacific Islanders have a 70 percent homeownership rate, while only 57 percent of U.S.-born Asians and Pacific Islanders own their homes. Overall, the homeownership rate for natives in 2002 was 70 percent, while it was 68 percent for naturalized citizens. However, for non-citizens as a whole, the rate was only 35 percent, although it was near the highest levels since data was collected starting in 1994.

The census data also suggest that homeownership is not even across the United States. Homeownership rate is the lowest in the West and Northeast at 63.8 and 64.7 percent respectively, while homeownership in the Midwest and South is the highest, at 73.3 and 70.3 percent respectively.

Figure 4. U.S. Homeownership Rate by Region in 2000



Data Source: U.S. Census.³

Further analysis of homeownership rates reveals that there are drastic differences across different ethnicities. For example, besides the remarkable difference between black immigrants and Asian immigrants, homeownership rate was highest among naturalized citizens from Europe, standing at 75 percent. It was lowest for naturalized citizens from Latin America, at 62 percent. The homeownership rate for naturalized immigrants remained very high at 70 percent in 2002.

However, compared to naturalized immigrants, non-citizen immigrants (mostly newly arrived immigrants) enjoy a much lower homeownership rate. In 2002, the homeownership rate for all non-citizens was 35 percent, only two percentage points higher than it was in 1994. Non-citizens born in Europe again had the highest rate of homeownership at 48.4 percent, about 13 percent higher than all non-citizens combined.

³ Detailed source: <http://www.census.gov/hhes/www/housing/hvs/q104tab6.html>

Among the non-citizen immigrants, Asians are not much different from people from Latin America, with Asians having a 34.6 percent homeownership rate and Latin Americans having a 31.5 percent rate.

Besides homeownership rates differences, the 2003 report did conclude that there are some interesting trends, some of them already being confirmed by previous research in this area. For example, the length of residence in the country makes a difference in homeownership rate regardless of area of origin. This conclusion is hardly new, as the drastic difference in homeownership between naturalized and nonnaturalized immigrants suggests that many immigrants either *choose* to own homes after they finish the long immigration process or they are *able* to afford owner-occupied housing only *after* aging during the process of naturalization. This process normally takes around 10 years, depending on the initial visa with which the immigrants came to the United States. Another conclusion drawn from the simple descriptive statistics is that married-couple families have the best chance of owning a home regardless of citizenship status. This is also a statement of the apparent, as marital status in general has been proven by previous research to have a major impact on homeownership along with other socioeconomic variables.

Housing quality is another area that shows important differences between native-born and immigrant households. Previous chapter has already talked about homeownership rates and crowding problems for immigrant families. In a comparative study of household characteristics in New York City, Rosenbaum (1999) further finds that there is statistically a significant quality difference between native-born and foreign-born households. In general, foreign-born/immigrant households tend to be located in

areas that have higher crime rates, more difficult access to medical facilities, and are closer to buildings with unsafe building violations.

B. Housing tenure choice research in general

There is abundant research on housing tenure in the literature and a wide variety of econometric models are used to explore this important topic in housing study. A number of researchers such as Wachter and Megbolugbe (1992), Green (2001), Flippen (2001), Goodman (1988), Kent (1984), Henley (1998), Hendershott and Won (1992), Masnick (2002), Mills (1990), Ortalo-Magne et al. (2002), Pickles and Davies (1986), Robst et al. (1999), and Takase (1995) have pointed out some important predictors of housing tenure choice, as well as the striking differences in housing needs, housing quality, and homeownership rates between ethnic minorities and the majority in the United States.

Specifically, research by Wachter and Megbolugbe (1992) indicates that the difference in homeownership between whites and minority households had been very persistent in the past two decades leading up to 1989. As they claim in the research, “from 1973 through 1989, the (home) ownership rate differential between white and nonwhite households stood at roughly 24 percentage points. The differential between Hispanic and non-Hispanic households, on the other hand, increased slightly from 22 percent points in 1973 to 26 in 1989.” In an attempt to understand why homeownership rates for whites are over 20 percentage points higher than for blacks or Hispanics, Wachter and Megbolugbe use the logit coefficients and the mean of household characteristics, as well as a decomposition technique that is widely used to analyze labor

market discrimination to model housing tenure choice among white and minority households (Hispanics). Based on the analysis of data from the American Housing Survey in 1989, the authors find that differences in the predicted probability of homeownership between minorities and whites are largely explained by differences in group endowments such as income, education, age, and gender. However, the authors are not sure whether these endowment differences can be attributed to their lower income, relative youth, and their greater concentration in household types that are not typically associated with higher homeownership rates. In other words, the authors are not sure whether the endowment variables' effect are direct, or the measured endowment effects are actually the working of other variables that are correlated with race and ethnicity, variables that are internal to the market process, such as wealth, household location, employment history, and cultural predisposition toward homeownership. If the authors are true, then their research would suggest that race and ethnicity do matter in affecting housing tenure decisions.

In a longitudinal study of the changing influences of education, income, family structure, and race on homeownership between 1960 and 1990, Gyourko and Linneman (1997) use decennial data from 1960 to 2000 to analyze the impact of the above-mentioned variables. In a strict sense, this study is a replicated cross-sectional design. But the study can still be useful to decipher some important information on housing tenure choice in the general population over time. The study dichotomizes race as two simple categories: whites or nonwhites, while the key variables such as education, age, and family characteristics are elaborately coded into dummy variables. This study seems to suggest that the narrowing of the homeownership propensities between the least educated

and the most educated households in the United States has slowed down. The authors, however, are not sure whether this phenomena will lead to reduced access to homeownership throughout the life cycle of the least educated or if it simply means that homeownership among the least educated households have simply been delayed. Either way, the research further indicates that delayed marriage and childbearing no longer are the important impediments to homeownership, while the impact of race persists in the general population of the United States. Finally, their research points out a disturbing trend among younger minority households: they seem to experience an increasing negative impact on their probability of homeownership as a result of their race and ethnicity.

In another study of housing tenure choice in the general population, Henderson and Ioannides (1986) treat housing tenure choice as a joint decision with the housing consumption decision. In addition, the authors model the effects of market imperfections and discriminatory practices on housing tenure choice. This study finds that housing demand is income-inelastic and price-inelastic while market imperfections are only relevant at a minimum level. Interestingly, Henderson and Ioannides find that variables such as education, age, and current income are important factors affecting housing tenure choice while race is not a statistically significant factor. Their analysis suggests that this finding results from the statistical estimation that people of lower education, younger age, and lower current income have an increased probability of being denied a mortgage, while race does not show a statistically significant impact. Note that although both these authors and Wachter and Megbolugbe (1992) confirm that education, age, and income are statistically significant variables affecting homeownership in the U.S. population, their

arguments are entirely different. Henderson and Ioannides (1986) claim that race does not seem to affect homeownership rate because what matters are the potential homeowner's education, age, and income. Wachter and Megbolugbe (1992), on the other hand, argue that even though these endowment variables are statistically significant predictors of homeownership, their effect may be indirect. Other variables such as wealth, household location, employment history, and cultural predisposition toward homeownership may be the direct factors affecting homeownership since they are often strongly correlated with race and ethnicity.

Unlike Henderson and Ioannides (1986), Kan (2000) treats tenure choice as jointly determined with expected mobility based on the assumption that in order to have a change in tenure mode, the household must move. Therefore, a move is like a prerequisite to a change in household tenure. The data collection was interesting in that while data was collected in 1992, information regarding each head of household was followed back to 1972, thus creating a backward-looking panel data on more than 4,000 households. The author uses dynamic random effects simultaneous equation modeling to study housing tenure decisions in the general population of the sample. The analysis indicates that expected mobility is a statistically significant factor affecting homeownership decisions, and the importance of socioeconomic variables will be exaggerated if expected mobility is not taken into consideration in the analysis. In addition, the analytical results confirm previous research conclusions that inflation does not have a significant effect on housing demand by households in the United States.

A recent study of housing tenure choice in the U.S. population by Lee and Meyers (2003) uses Public Use Microdata Samples from 1980 and 1990 to investigate the

contextual influences on housing tenure choice. The difference between this study and all others is that it uses trichotomous tenure choice models instead of regular dichotomous models, which normally treat renting as the reference tenure choice. The statistical analysis suggests that, in addition to individual and household factors, market factors or spatial factors also contribute to the housing tenure choice of homeowners. Besides introducing market characteristics, the interactions of these characteristics with variables such as gender and minority status are also explored. The analysis also suggests that, from 1980 to 1990, market conditions measured by price-to-rent ratio have a significant effect on housing tenure choice in the general population. Furthermore, the rapidly increasing house prices during the 1980s discouraged homeownership by younger potential home seekers. Finally, Lee and Meyers (2003) suggest that future housing research should be more comprehensive and take into consideration the complex interaction between an individual's human capital and the metropolitan housing market characteristics. All in all, it is unknown whether the same model specifications will yield similar results in the immigrant population, which faces very different difficulties when choosing to own or rent.

In summary, housing research during the past decade or so has produced very interesting understanding of the owning and renting behaviors of households in the United States. Overall, the research indicates that several groups of variables have an important impact on housing tenure choice of a household. Among the most important variables, there is still debate about how key variables such as age, education, and income affect housing tenure choice among racial and ethnic minorities. The exploration of market characteristics has been adequate enough to suggest that local housing market

characteristics must be taken into consideration to predict homeownership of households. However, researchers are still not certain exactly how race and ethnicity affect housing tenure choice, although statistical analyses have indicated the strong correlation between race/ethnicity and tenure choice. Most important of all, the housing tenure choice literature on the general U.S. population as a whole rarely distinguishes other important differences among minorities themselves, thus leaving it unclear how exactly racial and ethnic minorities differ from each other when making housing tenure decisions.

C. Housing tenure choice by immigrants

Compared to research on housing tenure choice among the general population, research on housing tenure choice by immigrants is fairly limited in scope and data coverage with varying methodologies and inconsistent results. Overall, there are much fewer studies that focus exclusively on housing tenure choice by immigrants, although a number of previous studies of minority housing tenure choice have often either briefly touched on the immigrant families or treated all immigrant families and native-born minority families as simply “minorities”.

In a rare qualitative study of homeownership among American immigrants, Ratner (1997) uses an ethnography technique to investigate the interaction of cultural, social, and economic factors. The overall study focuses on four local housing markets, namely Syracuse in New York, Montgomery County in Minnesota, Northern Queens in New York, and rural South Carolina. This ethnography approach was used based on the assumption or claim by HUD and Fannie Mae’s Office of Housing Research that the standard research approaches using mostly census data might be too narrowly focused

and might leave out other subtle but important variables that are not normally asked in standardized questionnaires. Although qualitative studies have often been criticized for their reliability problems, this study at least provides some interesting understanding of housing tenure choice by minorities and immigrants based on information collected from several locations.

Specifically, the study finds a number of factors that may account for the lower homeownership rate among minority and immigrant households. One of the points made in the study is that the lack of appropriate and affordable housing for many minority and immigrant families may be what frustrates their desire for homeownership. Ratner (1996) alleges that in many of the places the research covers, many low- and moderate-income households with steady incomes and good credit histories cannot realistically afford or purchase homes because the local housing price was too high. However, it is not clear how prevalent the problem is across the United States as the examples used in the study are Northern Queens of New York and Montgomery County of Minnesota, both of which are expensive communities. The study cites that the median prices of owner-occupied housing were \$168,000 and \$231,000, which are much higher than the \$120,000 national median value in 2000. Another factor cited as an impediment to homeownership by immigrant and minority families is the limitation of existing financing tools. Ratner also asserts that the lack of home-purchasing knowledge is another factor that helps lower the homeownership rate among immigrants. Conceivably a poor comprehension of English makes it difficult for some immigrants to understand the details of home buying such as how home finance works, how to approach a real estate agency, and who receive points and commissions in the home-purchase transaction. Finally, Ratner (1996) argues that

cultural gaps or biases are among the most important barriers for homeownership by immigrants. Besides feeling distanced from real estate agents, banks, and mortgage lenders, professional immigrants with decent incomes rarely face the difficulties that low- and moderate-income immigrants must cope with when trying to become homeowners. Professional immigrants, who are less likely to default on mortgages and/or increase crime rates in their neighborhoods, are not as apt to experience tighter scrutiny by these institutions.

Using linear probability models, Borjas (2002) not only confirms the low homeownership rate of immigrants, but also finds that the gap in homeownership between natives and immigrants has widened from 1980 to 2000. Borjas also found that the demand for owner-occupied housing in many metropolitan areas by immigrants is increasing. However, the findings of this study challenge previous research findings that a large part of homeownership gap between immigrants and natives can be attributed to differences in variables such as income and household composition. Instead, Borjas argues that national origin of the immigrant population helps explain much of the gap between native-born and immigrant households. In other words, Borjas suggests that the overall homeownership rate among immigrant families is low because it is too low among immigrants from only some countries, while immigrant families from other countries have similar or even higher homeownership rates compared to native-born households. However, Borjas didn't explain why homeownership rates among immigrants from select countries, such as Mexico and other Latin America countries, is so much lower than immigrants from other countries such as China and some European countries. Overall, Borjas's study is one of the best in terms of data representation and it

has carefully pointed out that the impact of immigration on housing demand is a very subtle one and the impact has not been systematically investigated by housing researchers. One shortcoming may be that the study aggregates many socioeconomic variables to create a number of indexes to simplify the regression model, thus making it impossible to explore and rank the importance of specific variables previously identified as affecting tenure choice in the general population of the United States.

In an effort to understand why Hispanic and Asian Americans⁴ have low homeownership rates, Coulson (1999) uses a series of probit models to confirm that being an immigrant has a substantial negative effect on the probability of being a homeowner, but this effect dissipates over time. This phenomenon may be explained by the fact that most immigrants came to the United States with severe social, cultural, and financial disadvantages but they somehow managed to overcome these deficiencies to achieve equal homeownership rates as they age. Besides the relative youth of these ethnic minorities, the author claims that their concentration in areas with high price-to-rent ratios may also be the factor that makes it more difficult for them to achieve homeownership in the United States.

As in much of previous research, this study does not seem to make a distinction between immigrants and minorities. In some groups such as Hispanics and Asian Americans, those who have been in the United States for generations and new immigrants are indistinguishable, making it difficult to decipher the exact behavior of housing tenure choice by immigrants who just came to this country. Presumably, tenure choice behavior

⁴ Although Asian immigrants, especially naturalized immigrants, as mentioned previously, have much higher homeownership **rates** than other ethnic groups, Coulson is correct to claim that overall Asian American households have lower homeownership **rates** than “other demographic groups” because Coulson is probably referring to all Asians including those who have been in the U.S. for generations, those who immigrated and became **naturalized**, and those new immigrants.

of new immigrants may be very different since almost all first generation immigrants must face particular cultural, legal, financial, and even language difficulties when trying to settle down in the United States. This “lumping” of native-born, naturalized, and newly arrived Asians in one big group may be the reason for the author to incorrectly claim that even when the most important resources (such as current income and permanent income) are equal, minority (Asian in this study) households still have a lower homeownership rate because of their race or ethnicity. This claim is incorrect for subtle and complex reasons. It is true that Asians in the United States have a higher-than-average median income than almost all other ethnic groups. It is also widely documented that Asian Americans have strong family values and other cultural advantages. However, Asian immigrants are among the fastest growing ethnic population in the United States in recent years. This influx of new immigrants might increase the percentage of newly arrived immigrants of all “Asian Americans”⁵ to a much higher level. Because of their special legal status and the particular obstacles they have to deal with, their housing tenure choice behavior may be very different from the naturalized Asian Americans or the Asian Americans who have been in the United States for generations. The inclusion of these rapidly increasing new immigrants will certainly lower the overall homeownership rate for “Asian Americans” defined by the researchers, as this dissertation project will reveal that homeownership rates for new immigrants is miserably low. This confusion of

⁵ Again I must clarify that Coulson, like many other scholars, incorrectly defines all Asian Americans who have been in the U.S. for generations, the naturalized Asians, and newly arrived Asian immigrants together as “Asian Americans” when in fact the newly arrived Asian immigrants are not “Americans”, which implies American citizenship, until after these immigrants go through lengthy immigration procedures to obtain employment authorization, permanent resident status, and then finally are naturalized to be formally U.S. citizens. Most of the scholars, even when they mention “Asian Americans”, “Hispanic Americans” or other minority Americans, frequently, by default of their analytical design, include non-citizen immigrants in their analyses. This potentially may distort their findings because these immigrants, facing mostly an uncertain future in the U.S., tend to behave very differently from other immigrants who have obtained U.S. citizenship through the naturalization process.

definition is also the primary reason that in this dissertation study immigrants are selected out from other native-born minorities who may be the same race or ethnicity. This was done so that the focus can be on this special group of minorities. Some key variables, such as citizenship status and length of obtaining citizenship status, will be added in the analytical models along with other variables to explore if their housing tenure predictors are different from those of native citizens, minority or not. This separation will also clarify what it really means to be “immigrants” and what it means to be “Americans”---to be exactly correct, for example, Asian Americans who have been in the United States for generations may be classified as “minority Americans” because of their ethnicity. It is entirely inaccurate to still classify them as “immigrants” although their ancestors were immigrants. By definition, immigrants (most of whom are not U.S. citizens) must face difficulties that are very different from those who are minorities but have been in the United States for generations.

In another ethnographic account of home buying by immigrants in Montgomery County, Maryland, Cheney and Cheney (1997) study the home-purchase behaviors of Latin-American and Indian immigrants. Their research further confirms that the social and cultural background of these immigrants do create different home-buying patterns and prospects. Overall, Latin-American and Indian immigrants are becoming increasingly important sectors of the community and their success in becoming homeowners contributes to the community’s continued growth and stability, a perspective also shared by Borjas (2002). On the contrary, Galster et al. (1999) find that excessive concentration of immigrants in a poorly educated and welfare-assisted neighborhood tends to impede the socioeconomic advancement of immigrants, which in turn may affect homeownership

rates among them. In addition, the authors suggest that a higher incidence of exposure to one's immigrant group tends to increase the chance of poverty for the immigrants years later and may even lower the employment opportunities for the immigrants. This apparent contradicting research result indicates that the concentration of immigrants is like a double-edged sword with conflicting consequences. On the one hand, some concentration of immigrants seems to increase their chances in the community if the community is a reasonably good one and the concentration is not excessive. The additional immigrants in the community seem to serve the function of supplementary ingredients for the healthy development of the community. On the other hand, the excessive concentration of immigrants seems to automatically create small or large areas that are dominated by immigrants, thus becoming small versions of immigrant "communities" frequently dubbed as "China Town", "Little Italy", "French Corner", etc. While these kinds of places are great symbols and flag manifestations of ethnic culture and heritage, they may also serve as impediments for social and economic advances for some members of the community, because excessive concentration is almost automatic segregation from the dominant American culture. In many China Towns, for example, the concentration of Chinese is sometimes so dense that there are virtually no outsiders in the very core of the community. Many Chinese immigrants are able to survive without speaking a word of English because they can obtain employment based on kinship and their Chinese ethnicity. While this may be a viable setup, employment opportunities are often very underpaid without any upward mobility. Especially when the whole community is not well educated and is welfare dependent, this simply won't create an

atmosphere in which all new immigrants would be able to flourish and mix with the English-speaking households, since they are simply not present in the community.

In a more specific regional study, McArdle (1997) uses binary logistic regression to reveal that different immigrants' social and cultural backgrounds create very different home-buying patterns in New Jersey. A limited number of variables such as age, household income, occupation, and ethnic status are found to affect housing tenure choice of immigrants in New Jersey. While admitting that the results may not be transferable to the national level, the author argues that the research results do reflect some national trends. Most notably is that the analysis confirms previous findings that age is an enormously important variable associated with homeownership rate of immigrants, and the homeownership rate for some immigrant groups could jump almost 300 percent if they are allowed to age 10 years or so. This study also confirms that, at least in New Jersey, Asian immigrants manage to achievement homeownership significantly higher than many other groups of immigrants from different countries of origin. Overall, the author is encouraged that many institutions such as lenders, community development organizations, and major actors in the housing market (Fannie Mae, for example) are realizing the potential of increasing homeownership among immigrants because the benefits will have ripple effects in the community to reach far more people than the immigrants.

In an interesting case study of Asian-American homeownership by Listokin and Listokin (2001), the authors provide some very valuable insights into how nonprofit organizations such as Asian Americans for Equality (AAFE) help tailor the complex web of activities required to expand homeownership for a group that frequently faces

language, culture, credit, and financial difficulties. In addition, the study also makes us appreciate how complicated the home-buying process can be and how necessary it is to have such nonprofit organizations to help tackle such a seemingly easy task of buying a house. Listokin and Listokin (2001) go into great detail to reveal how AAFE addresses the many challenges faced by Asian immigrants in New York, by taking a fairly aggressive approach and providing a number of services that help compensate the deficiencies of immigrant families. According to the authors, AAFE has tried to organize outreach programs such as housing fairs and neighborhood publications, education and counseling in a variety of languages and settings, securing multiple housing subsidies and developing affordable housing, and educating lenders on the employment and credit practices of Asian community. This go-out-of-the-way approach seems to have helped a great deal in improving the homeownership rates among Asian households. Listokin and Listokin (2001) make an important contribution in that they point us to the fact that increasing homeownership is not so simple as building the homes and supplying the loans and then the immigrants will become homeowners. There are a number of dots that must be connected. A much more active approach is needed so that policy makers, lenders, community developers, and the immigrants are on the same page with relatively good mutual knowledge of each other.

In a very quantitative study of Asian-American homeownership using 1990 census data, Painter et al (2003) further investigate the reasons for the differences in homeownership rates between Asians and white-American households. Their research suggests that factors affecting the likelihood of homeownership differ across geographic areas, across time, and across groups. In addition, their research indicates that most Asian

groups have homeownership rates similar to those of whites, but Chinese households have homeownership rates 20 percentage points higher than their household characteristics would predict. The authors suspect that either peer pressure from fellow Chinese or family support may be responsible for the higher homeownership rate. Furthermore, the authors even claim that immigrant status does not lead to lower homeownership rates among Asians. This claim is directly at odds with previous research done by other scholars including Coulson (1999) and Kan (2000). Both conventional wisdom and previous research have suggested that immigrant status does affect homeownership rates. The author of this dissertation study believes that both previous research and Painter et al. are correct in making their statements because they may be talking about different things when they mention “Asians.” A number of previous researchers have claimed that immigrant status hurts homeownership because when talking about Asian Americans, they by default treat all Asian Americans who have been in the United States for generations, the newly naturalized Asian immigrants, and the newly arrived Asian immigrants who are technically not “Americans” all as Asian Americans. In reality, these newly arrived Asian immigrants face very harsh language, cultural, social, financial, and especially legal obstacles to settle down in the United States. It is a fact that homeownership among these newcomers is very low, thus dragging down the overall homeownership rate among the “Asian Americans” defined by most previous researchers. When all these “Asians” are put together, statistically immigrant status of Asians tends to show an impact. However, Painter et al. (2003) may also be correct because it seems that their study selects areas such as Los Angeles, San Francisco, San Jose, and New York, which are historically among the highest concentrated places of

Asians. Probably because the percentage of real Asian Americans (who have been in the United States for generations) and naturalized Asian immigrants is much bigger than that in the samples used by other researchers, the “dragging” effect of the newly arrived Asian immigrants is not as big as it would be in other samples, thus prompting Painter et al. (2003) to claim that immigrant status does not have an impact on homeownership among Asians---in reality homeownership among established Asian families (who have been in the United States for generations) and naturalized Asian immigrants is either as high as native-born households or higher. However, newly arrived Asian immigrants have a very low homeownership rate that is at about the same level of many other immigrant groups from different countries. To summarize, the different claim about the impact of immigrant status may be due to the differential percentage of newly arrived immigrants in their samples. Overall, the probit models identify that age, education, marital status, personal income, rent price, and length of stay in the United States are important factors affecting housing tenure choice by different immigrant groups. However, the study omits other important variables such as occupation, house price, house price/rent ratio, and household income.

In an earlier regional study by Painter et al. (2001), the authors contradict previous research literature by pointing out that, at least in the Los Angeles metropolitan area, Asians are as likely to choose homeownership as are whites, and immigrant status does not affect homeownership rates among Asians. Their probit analytical models include a limited number of variables such as age, marital status, education, household size, personal income, migration within California, and length of stay in the United States. . The most recent research by Painter et al. (2004) sheds more light on the

homeownership rates of Chinese Americans by pointing out that Chinese Americans do have homeownership rates that are much higher than those of native whites. However, English skills of the households do not make any difference while nativity has highly significant impact on homeownership in the Los Angeles Consolidated Metropolitan Statistical Area. Even though the length of stay variable has controlled some of the effect of permanent residency status, these research results may still be in part due to the fact that the Los Angeles metropolitan area concentrates a much larger percentage of immigrants who either have already become naturalized American citizens or who actually hold permanent resident status. Either naturalized status or permanent resident status will eliminate many of the uncertainties newly arrived immigrants must consider before buying homes. This large concentration of immigrants who have “established” themselves in the United States already will help mask the fact the newly arrived immigrants, wherever they are, tend to have very low homeownership rates even though they are Asians.

In one of the few available longitudinal studies of homeownership attainment, Meyers et al. (1998) use a cohort method for modeling longitudinal changes in homeownership attainment to estimate the trajectories of housing tenure choice by birth cohort and arrival cohort from 1980 to 1990. This study is one of the very few studies that actually make the distinction between native-born ethnic minorities and immigrants of the same ethnicity. Focusing on comparisons among native-born whites, native-born Mexican Americans, and Mexican immigrants, this interesting study finds that temporary factors such as cohort membership and duration of U.S. residence are strong predictors of homeownership, while confirming that age is an important variable affecting tenure

choice. This study makes a contribution by showing that there are interaction effects between birth cohort and education or individual income. However, further possible interactions among variables are left unanalyzed. Meyers et al. (1998) rightly conclude that homeownership is not an impulsive consumer decision, but a decision of a lifetime. Housing tenure choice, especially when choosing to purchase a home, claimed by Meyers et al., is a decision that results from life experiences that date back decades before the tenure choice. To further explain the lagging of homeownership rate increase among immigrants as age increases, Meyers et al. also make excellent observations. Defining it as “assimilation effect”, they correctly conclude that homeownership not only comes naturally as immigrants age, it also accelerates among the immigrants as “their residence in the United States increases.” Although Meyers et al. haven’t explained what they mean by “increase their residence,” it is clear they are referring to the fact that immigrants tend to pick up homeownership much faster after they have more certainty about their long-term future in the United States, as permanent resident status and naturalization into American citizens often come years if not decades after first entering the United States. This dissertation project will introduce a few new variables and will follow similar comparison procedures. But sampling, variable selection, and analytical techniques are going to be different, and 10 immigrant groups will be analyzed instead of just one, as in the study of Meyers et al.

In a separate study of five metropolitan areas, Meyers and Park (1999) indicate that occupational achievement makes a significant contribution to homeownership attainment and the rate of progress toward homeownership for immigrants generally parallels that for young whites in the same metropolitan area among immigrants of

Hispanic origin. This finding slightly contradicts their later research, which suggests that immigrant households tend to increase their homeownership rate faster than native-born households as they age because of the “assimilation effect” (Meyers et al. 1998). However, the occupational effects among Asian immigrant households are twice as large as those among immigrants of Hispanic origin. Meyers and Park (1999) explain that this large difference is due to the different ways occupation exerts its impact on homeownership: while immigrants of Hispanic origin tend to increase their homeownership probability by having higher incomes, which mostly are the result of occupational advancements; Asian immigrants, on the other hand, tend to increase their homeownership probability directly as a result of higher incomes, which are not always well correlated with occupational achievements. While overall a good study of homeownership among immigrants, the logistic regression models include only variables such as birth cohort, marital status, education, marital status, and occupation while leaving other potential factors unanalyzed. In addition, it is not clear how the homeownership patterns have changed especially after record level immigration that has impacted the urban areas tremendously in many ways (Martin 2003) because their research focuses on data covering the 1970s and 1980s.

In a study of a special segment of the immigrant population, Lewin (2001) reveals that the housing situation for elderly immigrants is much more complicated and their segregation and exclusiveness should be considered, using an experimental perspective and a phenomenological, developmental perspective. The author argues that factors such as the immigrant group’s own value system, norms, and preferences should not be overlooked when evaluating their tenure choice behaviors. Though theoretical in nature,

this study asserts that elderly immigrants should be treated as a separate group to study because of their unique age, cultural, societal, and personal characteristics.

As far as spatial distribution of immigrants in the United States, detailed and systematic studies are surprisingly not abundant. Several characteristics are at least apparent. First, the Census Bureau suggests that most of the nation's foreign-born population concentrates in states such as California, New York, Texas, Florida, New Jersey, and Illinois. Previous studies such as the paper by Martin, (2003) suggest immigrants predominantly choose to settle in urban areas. However, as Newbold (1999) and Newbold and Spindler (2001) contend, there is no systematic investigation of the settlement system of immigrants although their settlements have constantly been evolving over time. Newbold (1999) makes some important observations about the settlement and migration patterns of immigrants. Using Public Micro Use data from the census in 1980 and 1990, Newbold attempts to explore how and why immigrants settle in certain areas and migrate from one place to another in 25 of the largest metropolitan areas in the United States. This study reveals that the spatial settlement of immigrants across the United States changed little from 1980 to 1990, indicating that it is very difficult to improve the segregated patterns of settlement by immigrants in general. However, the study further indicates that newly arrived immigrants tend to migrate from one area to another much more than those who have been in the United States for a long time and who have obtained U.S. citizenship. The author explains that after obtaining citizenship, a large percentage of the immigrants become homeowners, thus creating practical difficulties and economic disadvantages to move. On the other hand, facing an uncertain future and having very low homeownership rates, the newly arrived immigrants are much

more likely to move within the United States among the little-changed settlement areas where most immigrants concentrate regardless of the length of their stay in the United States. The study also indicates that different cohorts of immigrants experience different migration determinants because they arrive in the United States in different times, which implies that the settlement of new immigrants will be different depending on the differing motivational factors such as economic growth and job opportunities.

In a much more focused study of immigrant settlement patterns, Newbold and Spindler (2001) focus their attention on Chicago and further confirm most of their research findings in the above-mentioned study. Pointing again to the finding that immigrants from different national origins may have very different settlement and migration patterns, Newbold and Spindler (2001) claim that it is going to be difficult to predict how immigrants will be assimilated because of the complex settlement and migration patterns. The implication of their findings for this dissertation study is that in the sampling of immigrants, caution will be exercised so that the areas chosen for this study should have a historically rich immigration tradition. This is because although some new areas may have had an influx of immigrants in the past 10 or 15 years, the different migrating patterns of immigrants mean that it is possible for some of the new areas to have no, or few, immigrants who have been in the areas for several decades. These new areas will not be selected because, by nature of the research design, only areas with three or four decades of historical immigration and immigrant concentration should be selected so that some of the variables included in the analysis models can be properly measured.

In the few available studies of the renting behavior of immigrants, Friedman et al. (1999) and Schill et al. (1998) find that overall foreign-born households are more likely to be renters and encounter affordability problems. Furthermore, these foreign-born immigrants are more likely to live in overcrowded and unsound housing but less likely to live in badly maintained dwellings. Interestingly, they also find that immigrants of specific ethnicity such as Puerto Ricans, Dominicans, Caribbeans, Africans, and Latin Americans are more likely than others to live in badly maintained units. This finding prompts the authors to conclude that race and ethnicity are more significant than immigrant status per se in determining housing conditions. Finally, their analysis also reveals that, at least in New York, the use of rental housing assistance by immigrants is no more frequent than native-born households and in some instances immigrants are less likely to receive assistance, refuting the allegations from some scholars that immigrants are more likely to become a “public charge” as far as housing goes. However, the study of immigrants in Finland by Kauppinen (2002) suggests that social housing seems to help decrease the extreme residential segregation suffered by immigrants, which act as key barriers to homeownership for the immigrants.

In a recent study of immigrant homeownership in Australia by Bourassa (1995), the analysis indicates that the relative cost ratio of owning to renting has a significant impact on the probability of ownership, with the immigrants having a higher rate of homeownership than natives given their endowments. The study also suggests that by dividing marital status into more than two categories helps improve the overall model by further revealing the difference in the probability of homeownership among singles.

For further literature on housing tenure choice, please consult a number of housing tenure choice researchers who have conducted other studies revealing interesting findings on housing tenure choice decisions for other countries such as Australia (Bourassa 1994, 1995), Sweden (Abramsson et al. 2002), New Zealand (Bourassa 2000), China (Huang and Clark 2002, Hsueh and Chen 1999), Britain (Passmore 2001, Salvo and Ermisch 1997), and Canada (Dion 2001; Danso and Grant 2000; Jones, 1989). Other authors whose research was reviewed for the formulation of this dissertation study include: Anas and Arnott (1994), Azen Krause (1994), Chow et al. (2001), Victoria (2001), Fu et al. (2000), Knight and Eakin (1998), Krivo (1995), Lee (2000), Meyers (1996), Ratner (1997), Ray (1994), Rosenbaum and Friedman (2001), Van (1996), White and Hurdley (2003) and Vanderhart (2002).

D. Summary of literature and objectives of this study

To summarize, a number of observations can be concluded from the literature review. Overall, the previous research suggests that:

1. Homeownership rates between native-born households and immigrant households are very different, with immigrants of many ethnicities having lower homeownership rates.
2. Among immigrants of different ethnicities, immigrants from European and Asian countries tend to have higher homeownership rates, while immigrants from Mexico and Latin-American countries tend to have very low homeownership rates.

3. The limited previous literature has provided some evidence that immigrants in general tend to live in dwellings that are of lower quality than those of native-born households, although details are not well investigated.
4. Besides the confusing definition of minorities and immigrants, the overall research findings seem to suggest, though not proven and studied systematically, that the housing tenure choice process among immigrants is quite different from not only native-born householders but also native-born ethnic minorities of the same country of origin.
5. While housing tenure choice research about the general population in the United States is abundant, the literature on housing tenure choice behavior of immigrants is very limited in scope, coverage of population, variable inclusion, and methodological consistency.
6. The home-buying process seems to be particularly difficult for immigrant householders because of their unique social, cultural, and ethnic characteristics and sometimes language barriers.
7. Previous literature, using mostly census data before the 1990s and various statistical models, has identified that variables such as race, educational attainment, household composition, ethnicity, household income and/or current wealth (Jones 1989), credit constraints, housing price, value-to-rent ratio (Coulson 1999), residential segregation (Flippen 2001), labor market condition/unemployment rate (Coulson and Fisher 2002), residential mobility (Boehm 1981, Ioannides and Kan 1996, Henley 1998), values, and goals (Coolen et al. 2002) are all important predictors of homeownership in the general

population of the United States, but the impacts of these variables among immigrant population have not been adequately explored.

Overall, the literature on housing tenure choice by immigrants is fairly limited and has several weaknesses:

1. Much of the research data is outdated and there is no confirmation for most of the theories and findings by similar research, as the overall research on immigrant housing tenure choice has been fairly sporadic and inconsistent.
2. While the many econometric analyses of housing tenure choice in the general population have formed some consensus on a list of variables that affect home-choosing behaviors, the research on immigrants is too limited to provide a general picture about the housing tenure choice by this special segment of the population.
3. Many variables such as endowments and mobility are identified as significant predictors of housing tenure choice or homeownership in the immigrant population. However, the findings are inconsistent and sometimes contradictory, and the methods of the studies are widely different. The inconsistency in findings and methods makes it difficult to compare results across studies to generate a clear picture regarding the housing tenure choice behaviors by immigrants.
4. While a few studies have identified some interesting interaction effects between variables predicting housing tenure choice in the general population, it is unknown in most cases whether the same interaction effects will hold in the immigrant population.
5. Other variables such as citizenship status often determine whether an immigrant can make a long-term investment such as a house in the United States. This

variable and the potential interaction of this variable with other variables in the immigrant population need further investigation.

6. The definition of “minorities” and “immigrants” by different scholars are different and very often confusing. While much of the debate was about whether race and ethnicity matter in the tenure choice of the general U.S. population, there is very little research on what factors matter when facing tenure choice AMONG the immigrants.

In light of the current research of homeownership by immigrants, this study has three objectives: first, this study intends to verify the predictors of a number of variables based on previous research on the tenure choice behavior of immigrants in the United States. As mentioned before, the limited research produced findings that are inconsistent and contradictory across studies. It is desirable to verify some previous findings using the most recent data.

Second, this study will explore whether some of the identified significant predictors of housing tenure choice in the general population apply to the immigrant population of several ethnicities, since one of the lapses in the literature is the lack of clarification between predictors of housing tenure choice in the general population and those in the immigrant population.

Third, the study seeks to make some methodological improvements in analyzing the housing tenure choice by immigrants by using a relative cost ratio rather than a price-to-rent ratio commonly employed in previous literature. In addition, difference in homeownership between native-born households and different immigrant groups are separated into endowment effect and residual effect to illustrate how much

endowments such as marital status, education and household income determine the differences in homeownership rate between groups. More detailed discussion of the improvements will follow in the methods section, but basically this study will differ from previous immigrant housing tenure studies in some variable selection, variable calculation, sample selection, and analysis approaches.

CHAPTER III

HYPOTHESES

In this chapter, hypotheses are developed based on the literature review provided in the previous chapter. Indeed, not much is known about housing situations of immigrants. The reason for this lack of attention from scholars is not clear. At least part of the reason may be that most of the scholars, when studying housing situations such as housing markets, housing quality, and housing tenure choice, tend to focus on the differences between native-born households and minority households. In defining minority households, many scholars simply treat immigrants the same as ethnic minorities from the same country of origin. In reality, immigrants, because of the relatively shorter length of stay in the United States and their unique struggles to settle down in the United States, have much higher mobility, a lower homeownership rate, and may behave differently in terms of housing tenure choice. Another reason for the lack of attention to immigrants may be that they still represent a small percentage of the American population. The recent interest in immigrant housing as a whole may stem from the fact that during the 1980s and 1990s, America experienced a dramatic increase in international migration and immigrants have become the driver of population growth in the United States. Finally, an increasing number of scholars have realized that

immigrants, especially immigrants who have not been in the U.S for long, should be studied separately because they have very different socioeconomic characteristics and face different struggles from those faced by ethnic minorities who have been in the United States for generations.

So much is unknown about immigrants in terms of their housing tenure choice or housing situation in general. Systematic investigation of their housing distribution, housing quality, migration patterns, and housing tenure choice is needed so that housing policies tailored toward this special and increasing segment of the population in the United States can be successful. Hypotheses are developed for this study and listed in the following part of this chapter. Note that these hypotheses are definitely not all the important questions that should be asked about the tenure choice of immigrants. The questions that can be explored using the Public Use Microdata (which is chosen for this study) are limited because census data are gathered using survey research methods, which require that questions must be standardized so that they are suitable for the entire U.S. population. The most obvious limitation of census data is that the census did not ask a lot of questions that are very specific to special segments of the population such as immigrants. Previous research has identified that cultural beliefs, values, and legal (or illegal) immigration status all have important impacts on how these immigrants choose their housing tenure. The standardized census questionnaires do not really ask too many specific questions that would allow the testing of some previous research findings or unproven claims. However, there are variables such as citizenship status and length of stay in the United States that will allow limited explorations of how some special characteristics of immigrants affect housing tenure choice and how they interact with

other variables. Due to the limitation and the scope of this dissertation project, several hypotheses are developed and this study will do some limited investigation of the housing tenure choice by immigrant households.

Hypothesis 1. *The factors affecting housing tenure choice may be not only different across immigrant ethnic groups, but also different between immigrant groups and native-born group.* Previous research mostly identifies that homeownership rates are different across immigrant groups from Asia, Europe, Mexico, and Latin-American countries. However, the detailed differences across different ethnicities within each of the above areas are rarely explored and not sufficiently understood.

Hypothesis 2. *U.S. citizen status for immigrant household heads may also be a key variable affecting housing tenure choice among immigrants. If so, the factors affecting housing tenure choice may be different across non-citizen immigrant households as a group, citizen immigrant households as a group and native-born households as a group.* As Both McArdle (1997) and Meyers et al. (1998) have discussed, the homeownership rate of immigrants tends to accelerate if they are allowed to age for some years. But most immigrants obtain citizen status while they age. No previous research has explored the impact of U.S. citizen status while controlling for the impact of length of stay in the United States. So this study will explore this question by introducing citizen status as one of the key variables.

Hypothesis 3. *The housing tenure choice predictors among immigrant groups may affect housing tenure choice differently among the immigrants than among the native-born population in the United States.* Although previous research has indicated that this hypothesis is most likely true, the evidence is not sufficient for several reasons.

First, previous research rarely makes the distinction between immigrants and ethnic minorities of the same origin, thus making it impossible to conclude that the findings based on some ethnic minorities will apply to immigrants who are different in many ways. Second, even when a few scholars investigate immigrant households exclusively, the native-born majority households are often not included in the analysis to provide some comparisons. Third, when immigrant housing tenure choice is analyzed, the focus is often on a few ethnic groups, with Asian and Hispanic immigrants being the most studied ethnic groups. Finally, the limited research findings sometimes contradict each other and there is no consensus on whether or how factors affecting housing tenure choice among immigrants differ from those affecting native-born households as a whole.

These above-mentioned hypotheses will be directly tested using a series of logit models, which will be explained in detail in the next chapter. Note that one of the objectives of this study is to test a number of previous research findings. Therefore, the analytical design of this study and discussion of findings will not be restricted to the above-mentioned hypotheses. For example, exploratory analysis will be conducted by separating the differences in homeownership rate between immigrant groups and native-born groups into endowment and residual effects examine which one has a bigger impact. Therefore the hypotheses developed in this chapter will mostly serve as guidance on how the data will be selected and how some analytical models will be set up. The next chapter will explain in detail the data source, variable selection, variable coding, variable calculation, and analytical techniques before findings are presented in the following chapter.

CHAPTER IV

METHODS

Data, sampling, variables, and analytical techniques

In this chapter, the detailed methodology of this study is provided. As discussed before, the limitations of census data do not allow the exploration of many interesting questions regarding housing tenure choice of immigrant households. But overall, Census Public Use Microdata is still a good choice for this study for several reasons. First, the 5 percent microsamples used for this study are relatively large and allow the division of the total sample into smaller groups for comparison, which is exactly what this study has set out to do. Second, though not designed specifically for housing study, the microsamples contain detailed variables about the housing of each household such as house values and household income. In addition, each householder's socio-demographic characteristics are also available so that these samples are sufficient for many kinds of analyses. Third, although housing survey data such as the American Housing Survey, which is frequently gathered by the Census Bureau, is another good source for the kind of analysis in this study, the key drawback is that the sample size of the housing survey is too small to be divided into a number of comparison groups required for this study. Finally, the housing

survey does not have enough cases to allow separate analyses of immigrant groups from various countries of origin. The following several sections provide detailed information regarding the data, variables used in the analytical models (including variable calculation), and detailed modeling procedures in this study.

a. Data

This study will use the U.S. Census Bureau's Public Use Microdata Samples collected for the 2000 census. The 5 percent samples are chosen for this study instead of the 1 percent samples because they have larger number of household records, thus making it possible to have an adequate sample size for the immigrants from the four metropolitan areas chosen for this study. Large initial sample size is needed because the sampling technique described in detail in the following part of this chapter means that a lot of cases will have to be deleted from the study, besides dividing the sample into a number of small ethnic groups for analysis and comparison.

The Public Use Microdata Sample (PUMS) files contain records representing 5 percent samples of the occupied and vacant housing units in the United States and the people in the occupied units. The files contain individual weights for each person and housing unit, which when applied to individual records, expands the sample to the relevant total. The wide selection of household and individual variables in these microdata files is sufficient for this study as part of the objective of this study is to test a number of previous findings on tenure choice in the U.S. population. The detailed income, housing, and mortgage variables will also allow the construction of variables such as user cost of owner-occupied housing relative to renting which represents a

methodological improvement over previous immigrant housing tenure research in the United States.

b. Sampling

In order to use the analysis techniques proposed in this study, basically two groups of samples will be selected: immigrant samples and comparison population samples. However, the sampling of immigrants from the original large microdata files at the national level is not only difficult but also impractical in actual statistical analysis due to regional variations of housing markets and widely differential concentration of immigrants in different areas. In addition, previous research has suggested all housing markets are local in nature anyway. In order to have a focused study, this dissertation project intends to focus on samples drawn from four major Metropolitan Statistical Areas (MSAs)⁶ that are historical and current immigration destinations, namely New York, Los Angeles, Dallas and Miami. These four areas are chosen because they will provide immigrant sample from the five (part of New York is located in New Jersey) major states of concentrated international immigrants: California, New York, New Jersey, Florida and Texas (Martin 2003). Samples of immigrants of the largest ethnicities will then be selected from the Public Use Microdata files for these metropolitan areas. The selection of households is based on the criteria that if a Public Use Microdata Area (PUMA) (represented by a PUMA code which designates area of 100,000 or more population)

⁶ Three of the four MSAs (Dallas, Los Angeles and Miami) are CMSAs (Consolidated MSA) while New York is a PMSA (Primary MSA). The reason for New York to be different is that the CMSA with New York in its boundary includes several dozen counties and is disproportionally large. So for this study, the component counties for Dallas MSA are Collin, Dallas, Denton, Ellis, Henderson, Hunt, Kaufman, Rockwall, Hood, Johnson, Parker and Tarrant counties. The component counties for Miami MSA are Broward and Miami-Dade counties. The component counties for Los Angeles MSA are Los Angeles, Orange, River Side, San Bernardino and Ventura counties. The components for New York MSA are Bronx, Kings, New York, Putnam, Queens, Richmond, Rockland and Westchester counties.

completely falls within the boundary of a MSA, then all households available from that file will be extracted. If a PUMA area only partially falls in the MSA boundary, that area is not selected as it contains households outside the boundary of the MSA chosen for this study. Although this procedure does exclude some households who are actually in the MSA boundary, it still produces a sufficiently large sample of households to be approximately representative of each MSA. Research by Martin (2003) suggests that some cities such as Boston, Chicago, and San Jose of California all enjoyed an immigrant increase of over 50 percent from 1990 to 2000. Since this study intends to be a more focused study with the selection of a few large metropolitan areas having both a rich immigration history and a large current concentration of immigrants, the recent immigration hot spots are not selected because the nature of statistical modeling design requires that the samples contain not only newly arrived immigrants but also immigrants who have been settling down in the area throughout the previous 25 years. As a result, this study selects the four MSAs as the primary areas from which the immigrant samples will be drawn. For all immigrant samples, a comparison group of native-born households will also be selected from the aggregated data of four MSAs.

Several other criteria are also followed in the sampling process for this study. The first step in sampling will identify the detailed groups of immigrants to be studied. Because of the scope of this study and the limitation in the coding of relevant variables, the focus of this study will be on 10 immigrant groups from different countries. The selection of the countries is based on the actual number of immigrants present in the selected MSAs; i.e., this study will select immigrants of countries from which the four MSAs have the largest immigrant groups.

Once the immigrant groups are selected, the immigrant households of each ethnicity will be selected from the four MSAs as distinct samples for analysis of housing tenure choice within the group. Similar analysis will be performed on the comparison native-born household sample before the immigrant group of each ethnicity is combined with the comparison sample for further analysis. This sampling technique certainly will not produce a nationally representative sample. But this particular sampling method will yield a number of immigrant groups from some countries and their housing tenure choice behavior will provide some insight into the home-buying patterns of immigrants across the countries. Note that the selection of immigrant groups will try to ensure that immigrants from Asian, Europe, and Latin America are all covered in this study. Furthermore, this sampling method avoids lumping people from all regions in the United States together in a larger sample so that spatial differences in housing tenure choice behavior are too difficult to control. Finally, this sampling method will also allow calculation of a region-specific user cost variable for the analytical models.

Some previous studies tend to sample by ethnicity without considering how long the immigrants have stayed in the United States. Some researchers even include second- and third-generation immigrants in their samples, which tend to distort the housing tenure choice behavior of new immigrants who have to struggle during the initial 10 or 20 years to overcome various difficulties. In addition, the study by Lewin (2001) suggests that housing for older immigrants is much more complex and should be studied separately because the older immigrants have their own values, norms, and preferences. In order to produce a more focused sample, this study will examine only those immigrant households whose head or reference person came to the United States no more than 40

years prior to 2000 and who are between 25 and 45 years old. This age interval selection is based on the assumption that immigrants under the age of 25 are much less likely to consider homeownership simply because they are too young and not ready to start a family, which is a primary motivation for home ownership. Immigrants over 45 are almost the parent generation of those 25 year old immigrants. Just as Levin (2001) suggests, tend to have a different lifestyle or preferences and their housing tenure choice is likely to be different and permanent simply because of their age. In addition, the housing tenure choice of younger immigrants roughly between 25 and 45 is most important because most of them will transition into homeowners during this age interval.

For all immigrant groups selected for this study, a sample of comparison group of native-born households will be selected as a comparison/control group so that the housing tenure choice of both groups can be analyzed separately and simultaneously.

Indeed, the proposed sampling technique for this study will not produce a nationally representative sample. But this sampling technique will allow much more focused, well-controlled analysis of housing tenure choice in an important age category for immigrants. This focused sampling will also allow comparative analysis of housing tenure choice behaviors between immigrants and native-born citizens. To summarize, this study is a case study of immigrants from 10 countries where the United States obtains most of its immigrants. The analytical design is sort of a case control design with study groups and comparison groups.

c. Measures

Dependent variable

The dependent variable will be housing tenure choice by immigrants (owning=1 renting=0). Ordinary least square regression is not suitable here because it assumes that the dependent variable is a continuous variable that is normally distributed. However, the dependent variable of this study is a binary outcome, meaning it can take on only one of two values, either 0 (renting) or 1 (owning), thus it cannot be normally distributed and no transformation can make it so. The predicted value for the dependent variable cannot be meaningfully smaller than zero or bigger than one. Thus an appropriate model for predicting the dependent variable in this study ought to constrain the predicted values to be between zero and one. Therefore a generalized regression model (logistic regression) is used as it is designed to handle binary outcomes without assuming that the dependent variable must be normally distributed.

Independent variables

The choice of variables is based a review of previous tenure choice studies in the literature. The following are the independent variables that will be included in the analyses.

Marital status⁷. Previous studies have already identified the impact of this variable in housing tenure choice decisions in the general population, so this variable will be included in the analysis. Previous research by Bourassa (1995) suggests that dividing marital status into two simple categories tends to oversimplify the impact of marital status on housing tenure choice in Australia. This study will divide marital status into three categories with two of them included in the analytical models: now married (yes=1,

⁷ Since the household is the unit of analysis, all variables measure the characteristics of household heads unless otherwise explained.

no=0), never married (yes=1, no=0) are included in the analysis model while the divorced, separated, widowed are in the reference group.

Education. Previous research has well documented the importance of education and some scholars even use education as a proxy measurement of permanent income for the household. Due to the coding method in the original data, this variable is measured using a few dummy variables indicating different levels of education: some college or associate degree (yes=1, no=0); have a bachelor's degree (yes=1, no=0); have a master's degree (yes=1, no=0). The household heads with all other education levels are the reference group.

Number of children in the household. This variable might be important because presumably, if the number of children increases, the necessity of an owner-occupied house is much greater as more bedrooms are needed to house the children. Apartments with three or more bedrooms become economically unfeasible to rent and single family houses will be a much better choice for similar expenses. Also an owner-occupied home will also represent a relatively stable life style.

Household size. Just like the number of children variable, the larger the number of household members (even though without the presence of children), the more likely a household would choose to own rather than rent, although some large households may consist of unrelated people who are more likely to rent. However, there is one variable available in the census microdata that allows some kind of screening so that only closely related family members will be counted in calculating household size.

Length of stay in the United States beyond age 18. This is one of the key variables identified by previous research to affect housing tenure choice by immigrants in the

United States. This variable is important because the first few years are particularly hard for immigrants who are trying to settle down in a new country. This study attempts to make some improvement in the calculation of this variable. Specifically, this study will calculate length of stay beyond 18 years of age instead of simply using length of stay. This decision is made due to the lack of importance for length of stay before immigrants become adults. For example, one 20 year old immigrant may have been in the U.S. since he or she was 5 years old (15 years of stay) but another 30 year old immigrant has been in the U.S. for only 6 years. The younger immigrant does not really have an advantage, as most of his or her length of stay in the U.S. was as a teenage. If length of stay beyond age 18 is used, then the impact of length of stay can be better measured and determined in statistical analysis. However, there is reasonable evidence to suggest that this variable not only directly affects homeownership choice by immigrants, but also interacts with other variables such as citizenship status or permanent resident status, which serves as a legal guarantee that the immigrants will be able to stay in the United States permanently. Previous research has alluded to the possibility that this legal guarantee of stay in the United States acts as a catalyst for the rapid increase in homeownership among immigrants who have been in the United States for a long period of time, often more than 10 years. Unfortunately, the census data used for this study do not include a variable that indicates whether the immigrants have permanent resident status or not, but all the files contain a variable that indicates citizenship status. Therefore, the interaction between this variable and citizenship status will be explored to see the length of stay in the United States interacts with citizenship status in affecting homeownership of immigrants. For native-born citizens, age beyond 18 will be created in correspondence to length of stay

beyond 18 among immigrant household heads. Note that this variable is transformed using logarithm function.

Household income. This variable has sometimes been included in previous research on the assumption that household income may also be important in housing tenure choice behavior because a house is usually shared by all members of the household, both literally and financially. Wachter and Megbolugbe (1992) argue that the most analytically desirable measure of income is household permanent income because it reflects longer-term income capacity of the household, including that from nonhuman capital. This is a theoretical concept that cannot be directly measured. Therefore, family income may be a good proxy variable, although some researchers have used education as the proxy variable for permanent income. That is based on the assumption that education is permanent and is a variable that is strongly correlated with lifetime income potential. But some researchers have also suggested the impact of household income is endogenous. To reduce endogeneity of this variable, a predicted household income is used in the housing tenure choice model in this study with three basic variables as predictors: education, age and gender⁸.

Relative user cost of owning to renting. This variable is one of the key variables included in this study. This study will follow similar calculations by Bourassa (1994) to derive the annual **relative** cost ratio of owning and renting, which is calculated by multiplying the annual user cost of owner-occupied housing by the price/rent ratio of the

⁸ Education is measured using dummy variables indicating master degree or more, associate degree, some college, and college degree with everything else as reference group. Gender is also a dummy variable while age variable is logged to reduce skewness of distribution. The predicted household income is calculated before sub samples are derived and the adjusted R squared for the model is .65.

specific city/metropolitan area. The following is the formula to calculate relative user cost in Bourassa's study:

$$\text{Relative user cost} = V_y/R_y * u_z$$

where V_y is the median value of a three-bedroom owner-occupied house in region y and R_y is the median yearly rent of the same house in region y . Symbol u_z is the user cost adjustment to take into consideration of a number of factors affecting the ratio. Essentially u_z is the adjusted user cost of investing one dollar into buying the house. It is calculated as follows:

$$u_z = (1-t_z)(1-k_z)*i_b + (1-t_z)*k_z * i_m + p_y*(1-t_z) + \zeta - \pi_y.$$

In this formula, t_z is the federal income tax rate applied to household income after tax deduction. Households' tax deduction is estimated using IRS publications for 1999 tax returns available from the IRS website for different income categories⁹. Symbol k_z is ideally a predicted loan-to-value ratio and i_b is the 3-month treasury bill return rate¹⁰. In this study k_z is designated to be 0.75 for all households, a national average loan-to-value ratio in 1999¹¹ because mortgage the needed variables to calculate household-specific ratio are not available from the data set. Symbol i_m is the mortgage interest rate¹² in 1999 while p_y is the average property tax rate calculated for region y by dividing the property tax payment by the estimated value of the home (both variables are available from the data set). The ζ in the equation is the combined depreciation and maintenance rate and π_y is the expected rate of inflation in house prices in region y ¹³. This rate is calculated using

⁹ Source of data to calculate this rate: <http://www.irs.gov/pub/irs-soi/99in53us.xls>.

¹⁰ Source: <http://www.cnn.com/ALLPOLITICS/stories/1999/02/01/budget.details/>

¹¹ Source: http://www.cohenfinancial.com/content.cfm?contentalias=pr_041503_portland&pff=1&m=2.

¹² Source of data to calculate this rate: <http://www.freddiemac.com/pmms/pmmsarm.htm>.

¹³ Source of data to calculate this rate: <http://www.ofheo.gov/HPIMSA.asp>.

the average annual house price increase index published by the Office of Federal Housing Enterprise Oversight from 1997 to 1999. In addition, i_b was 0.042 and i_m was 0.0744 in 1999. In this study, π_y is calculated housing price inflation for all four MSAs using median housing values in 1990 and 2000, but ς is assumed to be a fixed value because of data unavailability. Even after simplification, this formula will take into consideration the impact of federal tax rates, property tax rate, region-specific value-to-rent ratios and region-specific housing inflation rates.

Immigrant status. Since this study intends to analyze housing tenure choice for immigrants and majority populations in both separate and combined samples, a dummy variable will be created to identify whether each individual correspondent is an immigrant or not (immigrant=1, native=0) in the combined sample. The significance level of this variable will indicate whether the intercept differences in housing tenure choice behavior between immigrants and majority members are statistically significant.

Naturalized immigrant status (if yes=1 no=0). This is a variable that is rarely examined by previous literature. But the findings by McArdle (1997) and Meyers et al. (1998) suggest that this variable may be an important factor affecting housing tenure choice among immigrants.

Interaction terms. The interaction terms between the dummy variable such as immigrant status, naturalized immigrant status will be included in models where appropriate according to the hypotheses. The t-test of these interaction terms will indicate whether the differences in housing tenure choice between immigrant households (or naturalized immigrant households) and native-born citizens can be attributed to each

specific variable. So in this analysis the dummy variable will be a moderating factor in this case control design.

d. Final samples

Using the criteria mentioned above, a sample of 340,054 households with 112,648 immigrant households and 227,406 native-born households (before age variable is confined to the prespecified interval for this study) is available for the four MSAs. After restricting householders' age to between 25 and 45, the combined sample from all four selected MSAs has a total number of 166,777 households and 57,711 immigrant households. Table 1 provides some descriptive statistics¹⁴ for each of the 10 immigrant groups that will be studied.

¹⁴ These statistics are not weighted as the analyses in this study are either immigrant-specific or simple comparison between immigrants and natives using roughly balanced sample size design. Therefore there is no concern that immigrants are over- or under-sampled.

Table 1. Descriptive Statistics for Immigrant Households of Different Country of Origin

Country of Origin	China	India	Japan	Korea	Italy
Variables	Mean	Mean	Mean	Mean	Mean
Homeownership	0.46	0.39	0.15	0.27	0.57
Now married	0.74	0.80	0.57	0.71	0.68
Widowed	0.01	0.01	0.00	0.01	0.01
Divorced	0.05	0.03	0.04	0.05	0.08
Never married	0.18	0.15	0.38	0.21	0.18
High school graduate	0.13	0.10	0.08	0.16	0.27
Below high school education	0.23	0.08	0.02	0.04	0.13
Some college or associate degree	0.13	0.10	0.18	0.23	0.24
Have a bachelor degree	0.22	0.32	0.51	0.36	0.17
Have a master degree or more	0.29	0.40	0.21	0.21	0.19
Number or own kids	1.04	1.04	0.59	1.06	1.15
Household size	3.11	2.98	1.68	2.80	2.83
Naturalized immigrant status	0.49	0.35	0.09	0.39	0.48
Length of stay in the U.S.	12.19	9.77	6.83	11.96	18.10
Linguistically isolated	0.44	0.11	0.51	0.48	0.14
Age of household head	36.42	35.11	34.68	36.17	37.29
Total individual income in 1999	41678	58006	70422	41247	54015
Household total income in 1999	65039	81386	80656	56805	73085
Los Angeles MSA	0.16	0.08	0.23	0.32	0.06
Dallas MSA	0.05	0.07	0.03	0.03	0.01
Miami MSA	0.04	0.07	0.03	0.02	0.23
New York MSA	0.76	0.78	0.71	0.64	0.70
N	2576	2259	505	1519	920

Table 1 Continued. Descriptive Statistics for Immigrant Households of Different Country of Origin

Country of Origin	Mexico	Cuba	Dominican	Jamaica	Haiti
Variables	Mean	Mean	Mean	Mean	Mean
Homeownership	0.26	0.56	0.15	0.46	0.38
Now married	0.70	0.65	0.51	0.46	0.56
Widowed	0.01	0.01	0.02	0.01	0.02
Divorced	0.05	0.16	0.16	0.12	0.12
Never married	0.18	0.14	0.18	0.32	0.22
High school graduate	0.18	0.24	0.21	0.25	0.24
Below high school education	0.65	0.24	0.42	0.18	0.31
Some college or associate	0.12	0.28	0.26	0.34	0.29
Have a bachelor degree	0.03	0.13	0.07	0.16	0.11
Have a master degree or more	0.02	0.10	0.04	0.06	0.05
Number or own kids	1.88	1.19	1.57	1.22	1.58
Household size	4.47	3.06	3.58	2.96	3.63
Naturalized immigrant status	0.26	0.53	0.44	0.57	0.51
Length of stay in the U.S.	14.52	18.34	14.22	15.22	14.13
Linguistically isolated	0.44	0.28	0.42	0.01	0.29
Age of household head	34.49	36.98	36.28	36.60	37.32
Total individual income 1999	24036	35370	20888	32795	25388
Household total income1999	43680	55010	35852	51382	43220
Los Angeles MSA	0.73	0.02	0.00	0.01	0.00
Dallas MSA	0.08	0.00	0.00	0.00	0.00
Miami MSA	0.04	0.87	0.10	0.34	0.55
New York MSA	0.15	0.11	0.90	0.66	0.45
N	5871	2981	3576	2571	2191

As indicated by the above tables, 10 immigrant groups from various countries of origin can be analyzed in this study. Specifically, similar analytical models will be run for immigrants from China, Mexico, Cuba, Dominican Republic, Jamaica, Haiti, Italy, India, Japan, and Korea. The decision to only analyze immigrant households from these countries has several other reasons. First, there are not enough cases for immigrants from all other countries so that they can be separated and analyzed alone. Second, it is not necessary and it is beyond the scope of this study to analyze immigrants from each country in the world. Third, the above countries are selected so that immigrants from each major source of immigration can also be compared to others within that same region. Specifically, United States immigrants come from several major places: Europe, Asia, Mexico, and other Latin-American countries. The selected groups will allow some comparison within the same region. For immigrants from Asia, the above selected immigrant groups will also allow the comparison of housing tenure choice predictors among Chinese, Koreans, and Japanese, all of whom come from Asia and were analyzed as Asian Americans together with native-born Asian Americans by most previous studies.

Note that not all variables presented in Table 1 are used in the logistic models. These variables are presented so that a general understanding of the samples is available before the findings of the inferential statistical models are presented. A quick look at Table 1 indicates that homeownership rates differ greatly across sample groups. Overall, the homeownership rate differentials across groups confirm previous research that homeownership rate is lower among immigrant households than the 51 percent among natives. Exploratory descriptive statistics (Table 2) also show that homeownership rate is much lower among non-citizen immigrant households. Note also that the non-citizen

immigrant households actually still contain immigrants who have already obtained permanent resident status but who have not yet become naturalized American citizens. As discussed in previous chapters, a permanent resident status is almost the equivalent of naturalized citizen status as it guarantees the right to a permanent stay in the United States. The data source does not permit the identification of immigrants with permanent-resident status. Therefore, immigrants with permanent resident status are lumped together with newly arrived immigrants to be called non-citizen or non-naturalized immigrants.

Table 2. Descriptive Statistics for Immigrant, Native-born and Combined Sample Households

	Non-Citizen Immigrant Households	Naturalized Immigrant Households	All Immigrant Households	Native-Born Households
Variables	Mean	Mean	Mean	Mean
Homeownership	0.23	0.50	0.35	0.51
Now married	0.64	0.64	0.64	0.53
Widowed	0.01	0.01	0.01	0.01
Divorced	0.07	0.12	0.09	0.12
Never married	0.21	0.17	0.20	0.30
High school graduate	0.19	0.19	0.19	0.20
Below high school education	0.40	0.22	0.33	0.09
Between college and associate degree	0.15	0.29	0.21	0.32
Have a bachelor degree	0.13	0.18	0.15	0.26
Have a master degree or more	0.12	0.12	0.12	0.13
Number of own children	1.37	1.43	1.39	1.06
Household size	3.40	3.52	3.45	2.47
Length of stay in the U.S.	9.56	15.69	12.11	17.77
Relative cost ratio	1.09	1.10	1.09	1.08
Age of household head	35.05	37.27	35.97	35.91
Total individual income 1999	33483	42552	37254	57393
Total household income 1999	49125	63313	55024	79585
Los Angeles MSA	0.26	0.17	0.22	0.16
Dallas MSA	0.04	0.03	0.03	0.12
Miami MSA	0.21	0.26	0.23	0.14
New York MSA	0.49	0.54	0.51	0.58
N	14589	10384	24973	10000

Even with the inclusion of permanent residents in the non-citizen immigrant group, the homeownership rate of this group is only 23 percent while the ownership rate for naturalized immigrant households is 50 percent, more than twice as high. Note that when both non-citizen immigrant households and citizen immigrant households are combined, homeownership is only 35 percent, much lower than the 51 percent homeownership rate among native-born households, although the homeownership rate among naturalized-immigrant households is almost the same as that of native-born households.

Table 1 shows that consistently more than half of the householders for each immigrant group are married (except immigrants from Jamaica). But education levels do differ a lot across groups. For example, while 29 percent of Chinese immigrants¹⁵ and 40 percent of Indian immigrants have a master's degree or more education; less than 10 percent of immigrants from Mexico, Cuba, Dominican Republic, Jamaica or Haiti have equivalent education. In addition, the education levels among the five Hispanic and Latino countries are also quite different, with Mexican immigrants having the highest percentage of members with below high school education and all the immigrants from these five countries have much lower percentage of members having a bachelor's degree.

The table also suggests that household income is very different across immigrant groups. For example, the average household income for immigrant households from China, India, Japan, Korea and Italy ranges roughly between \$56,000 and \$81,000 while the average household income for immigrant households from Mexico, Cuba, Dominican Republic, Jamaica and Haiti ranges between about \$36,000 and \$55,000. Descriptive statistics on immigrants as a whole (Table 2) suggest that non-citizen immigrant

¹⁵ When mentioning immigrants from samples in this study, the author means immigrants who are household heads.

households all together have an average income of \$49,125 in 1999, while naturalized immigrant households have an average income of \$63,313. The average income of native-born households, on the other hand, is about 62 percent higher than that of non-citizen immigrants.

The statistics in Table 1 also suggest that homeownership rates vary greatly not only across immigrant households from different countries of origin from the same region, but also across regions. As the table shows, homeownership rate among Chinese immigrants is 46 percent, the highest among immigrants from Asian countries. Interestingly, the homeownership rate for Japanese immigrants is the lowest among the four countries from Asia, which is counterintuitive as Japan is one of the most developed countries in the world. This may be due to the unusually small sample size: virtually all of the immigrant groups except those from Japan have a large concentration of their members in at least one of the four MSAs. The total number of immigrants from Japan for all four MSAs is only around 500, significantly smaller than that of other immigrant groups. The low homeownership rate may be also due to the low rate of Japanese immigrants being married and having a much shorter average stay in the United States. While the average length of stay for Chinese immigrants is more than 12 years, it is less than 7 years for Japanese immigrants. Overall, Japanese immigrants still have the second highest average total household income and the highest individual income besides their larger percentage of being single and their shorter stay in the United States.

Table 1 also shows that homeownership rates for immigrants of Hispanic and Latino origin are very different too. Overall, immigrant households from Cuba and Jamaica have the highest homeownership rates at 56 and 46 percent respectively, while

immigrant households from Mexico and Dominican Republic have the lowest homeownership rates at 26 and 15 percent, even though their marriage rate and average length of stay do not differ too much from each other.

Looking across the 10 immigrant groups, the homeownership rates differ greatly from region to region. However, the numbers seem to imply that these differences are due to the varying percentages of different variables for different regions. For example, immigrants from Asian countries generally have homeownership rates that are much higher than those from countries of Hispanic ethnicity. Some differences may be due to the rate of immigrant householders being married and some are due to varying education levels. Yet some others may also be due to drastically different individual and household income. It is impossible to conclude anything based on simple descriptive statistics, so the next section will focus on the discussion of the results from the logistic models to further examine how and why homeownership rates vary across countries of the same region and from region to region.

Table 3 provides some key statistics such as homeownership rate and relative cost ratio parameters for each of the 4 MSAs.

Table 3. Homeownership Rate and Relative Cost Ratio Variable Descriptives by MSA

	Dallas	Los Angeles	Miami	New York
Homeownership rate	0.65	0.42	0.55	0.40
Value to rent ratio	14.88	18.75	14.32	19.53
Average marginal tax rate	0.25	0.24	0.23	0.25
Average property tax rate	0.02	0.01	0.02	0.02
House price inflation rate	0.05	0.06	0.03	0.05
Average Relative cost ratio	0.97	0.91	1.15	1.14
N	14639	28863	27588	95687

e. Analysis

As already mentioned in a previous section, immigrants from 10 countries are first separated into different ethnic groups and logistic regression will be used to analyze the statistical significance of the variables selected for this study. The following is a discussion of specific analyses by hypothesis.

Hypothesis 1. *The factors affecting housing tenure choice may be not only different across immigrant ethnic groups, but also different between immigrant groups and native-born group.* To test this hypothesis, housing tenure choice is analyzed using logistic regression for each of the 10 immigrant groups. Then a sample of 3000 native-born household heads is selected and the same logistic regression is run. Note that this arbitrary 3000 native-born households sample size is used so that the sample size differences between native-born group and immigrant groups are not so drastic to create unbalanced data, which in turn may create very different statistical power to detect significant effects for different groups. These 3000 native-born households will also be combined with specific immigrant group in analysis of hypothesis 3. Through visual inspection, several differences can be examined. First, the difference in statistically significant factors among different ethnic immigrant groups, between immigrant groups and native-born group can be compared. It is very likely that some predictors are statistically significant for some immigrant groups but not for others. Some statistically significant factors for native-born households may not be significant for immigrant groups. Second, with the same statistically significant factor across groups, the direction of impact (positive or negative) may also be different for different groups (in this study only odds ratio or Exp(B) coefficient is provided, but any odds ratio bigger than one will

suggest a positive impact on homeownership and any ratio less than one will suggest negative impact). Third, even with the same statistically significant factor and the same direction of impact, the size of the effect may be different across different immigrant groups. The differences in the size of the effect can be examined through visual inspection of the odds ratios which are the standardized effect size in logistic regression comparable across different sample groups in this study. For example, suppose an effect size (odds ratio) is 1.23 for a dummy variable for one immigrant group but is 1.56 for another immigrant group, and the dummy variable is statistically significant at the same level for both immigrant groups. In this case, the direction of impact of this dummy variable and the statistical significance of the variable are the same across immigrant groups. But there is still some difference in that for the first immigrant group, the dummy variable only increases the homeownership rate by 23 percent while the same variable increases the homeownership by 56 percent for the second immigrant group while holding all other variables constant.

Even though the three kinds of differences are examined only through visual inspection (i.e. not statistically compared with a test of statistical significance), the rough comparative differences will still reveal interesting information about homeownership across the groups (including native-born households) while more detailed statistical comparisons will be conducted in the next two hypotheses.

Hypothesis 2. U.S. citizen status for immigrant household heads may also be a key variable affecting housing tenure choice among immigrants. If so, the factors affecting housing tenure choice may be different across non-citizen immigrant households as a group, citizen immigrant households as a group and native-born

households as a group. Note that here all 10 different ethnic immigrant groups are combined into one sample before they are split into two groups: citizen immigrant group and non-citizen immigrant group. Two combined groups are analyzed using interaction between key variables in the model and citizenship status of immigrants. The first combined group will be all immigrants from 10 countries (either with or without citizen status). In this combined sample the statistical significance of the interaction terms between key variables and citizenship status will indicate whether those variables impact homeownership differently between citizen immigrants and non-citizen immigrants. The second combined group will be native-born citizens and citizen immigrants. In this combined sample, the interaction terms between key variables and citizen status of immigrants (which is simply immigrant status in this combined sample) will reveal whether those key variables impact homeownership differently between native-born citizens and immigrant citizens. Note that for this hypothesis, a random sample of 10,000 native-born household heads is selected because the total citizen immigrants and total non-citizen immigrants are 10,384 and 14,553 respectively. The 10,000 native-born household heads will roughly satisfy the sample size balance in the two combined sample analyses.

Note that the decision to not analyze the interaction between U.S. citizenship status and other variables for each specific immigrant group is due to two reasons: first the number of naturalized immigrant (i.e. U.S. citizen immigrants) varies widely across different countries of origin. Second, the numbers of U.S. citizen immigrants for many of the specific immigrant groups are too small. These small numbers of citizen immigrants

may not have sufficient statistical power to detect certain effect size differences even though they may exist in the population.

The analyses for this hypothesis will formally test whether U.S. citizen status has an impact on homeownership across groups. But the analyses will also permit some visual inspections. For example, if the interaction terms in the combined native-born citizens and immigrant citizens are mostly not statistically significant while the interaction terms are significant in the combined citizen immigrants and non-citizen immigrants, then the results may suggest that the citizen immigrants behave a lot like native-born citizens while the non-citizen immigrants behave very differently from the citizen immigrants.

Hypothesis 3. *The housing tenure choice predictors among immigrant groups may affect housing tenure choice differently among the immigrants than among the native-born population in the United States.* For this hypothesis, a combined sample for each of the 10 immigrant groups will be used and logistic regression will be run for each sample. Specifically, the native-born household sample used for the first hypothesis will be combined with each of the 10 immigrant groups to create 10 separate combined groups. Then logistic regression will be run for each group and the statistical significance of the interaction terms between key variables and immigrant status will reveal whether the predictors impact immigrants differently. Further more, just like in hypothesis 1, visual inspect in the difference of the interaction terms will reveal interesting differences such as whether there is difference in the statistically significance, direction and effect size across the 10 combined groups.

However, the drawback of this approach is that we are still not sure how much a difference the differences in predictors between immigrant group and native-born groups make. To address this exploratory question, the differences in homeownership rates between native-born groups are separated into endowment and residual effects. Specifically, a logistic regression is run on the native-born household sample used in this hypothesis to get the logit coefficients for relevant predictors discussed in the previous sections. The logit coefficients are the expected effects on housing tenure choice (homeownership) of native-born household heads in the native-born population given their socioeconomic characteristics. These coefficients are then multiplied by the means of the same socioeconomic variables for each immigrant group. Then the sum (s) of all the coefficients multiplied by their respective means can be transformed back to a homeownership rate by the following equation: $\exp(s)/(1+\exp(s))$. The difference between this calculated home ownership rate and the homeownership rate of native-born households will be the endowment effect, i.e. the differences in homeownership rate due to differences in all variables included in the logistic regression between immigrant group and native-born group. Then the endowment effect is subtracted from the actual homeownership rate differences calculated from immigrant household samples and native-born household sample to get a residual effect. This residual effect is the behavioral effect that account for the differences in homeownership rate that cannot be explained by the socioeconomic characteristics.

CHAPTER V

FINDINGS

Summary of Findings

In this chapter, the findings of the study are presented. First, the statistical analysis results are shown according to each hypothesis. Then the inferential statistics are summarized and the following chapter will provide some conclusions, future research suggestions, and policy recommendations.

Hypothesis 1. *The factors affecting housing tenure choice may be not only different across immigrant ethnic groups, but also different between immigrant groups and native-born groups.* Table 4 suggests that this hypothesis is well supported by the analyses. First, the factors affecting homeownership are indeed different across groups (including both immigrant groups and natives as a group). For example, being married is a very strong predictor among the native-born citizens with an odds ratio of 3.38 ($p \leq 0.001$). This result indicates that, holding all other variables as equal, married household heads are more than 3 times more likely to own their own homes than unmarried household heads. However, this variable is not statistically significant for immigrants from China, India, Japan and Korea, meaning that being married or not has no relationship with homeownership in the larger population that the immigrant samples

represent. These are indeed very significant differences. Furthermore, among some immigrant groups such as those from Mexico, Cuba, Dominican Republic, and Jamaica, being married has a positive impact on homeownership and the impact is statistically significant. But the impact is not as big as it is for native-born citizens, with odds ratios ranging only from 1.31 to 2.55 (compared to 3.38 among natives).

The table also suggests that among natives, being a never-married single has a negative impact on homeownership with an odds ratio of 0.72 ($p \leq 0.05$). As discussed before, an odds ratio smaller than one for a dummy variable indicates that it has a negative impact on homeownership; the more the odds ratio is away from one, the bigger the negative impact. This result is very understandable as many never-married singles do not “need” an owner-occupied home until they are ready to get married. However, this negative result does not hold for all of the 10 immigrant groups. Among immigrants from Asian countries, Italy, Mexico, Cuba, and the Dominican Republic, this relationship is not statistically significant, while it is among immigrants from Jamaica and Haiti. This result suggests that there is no disadvantage for being never married in most immigrant groups while there is some disadvantage among native-born citizens.

Interestingly, the number of children belonging to each household head has no impact on homeownership for most immigrant groups but the total household size has varying but all positive impacts on homeownership among virtually all immigrant groups (most of the impacts are statistically significant). This result suggests that the number of household heads’ own children is not important but the total number of people in the household is the primary motivation to live in owner-occupied homes. It should be noted that although the odds ratio of predicted household income is scaled to represent increase

in odds ratio for every \$10,000 increase in income. The models suggest that it has a positive impact on homeownership for each group.

As expected, length of stay has a very strong positive impact on homeownership and the equivalent measure among natives also has a strong positive impact that is statistically significant. This result confirms, as a number of previous studies do, that the longer the immigrants stay in the U.S., the higher their homeownership rate will be.

Also as expected, the relative cost ratio has a very strong and negative impact on homeownership among most groups. For all sample groups for which this variable shows a negative impact with $p \leq 0.05$, the odds ratio is very small and much closer to zero.

Table 4. Logit Models of Factors Affecting Housing Tenure Choice (Immigrants and Natives Separate Analysis for Hypothesis 1)

Country of Origin	China	India	Japan	Korea	Italy	Natives
Variables	ExpB	ExpB	ExpB	ExpB	ExpB	ExpB
Now married	1.14	1.08	2.42	0.72	2.10 **	3.38 ***
Never married	0.96	0.77	1.75	0.97	1.44	0.72 **
Number or own kids	0.91	1.08	1.20	0.93	0.95	1.06
Household size	1.38 ***	1.35 ***	1.11	1.60 ***	1.38 **	1.13 **
Predicted household income	1.19 ***	1.11 ***	0.99	1.13 ***	1.08 **	1.18 ***
Length of stay in the U.S.	3.36 ***	3.25 ***	4.75 ***	2.71 ***	2.78 ***	2.68 ***
Relative cost of owning to renting	0.34 ***	0.93	0.00 ***	0.05 ***	2.90 *	0.57 *
Constant	0.02 ***	0.01 ***	1.52	0.10 ***	0.01 ***	0.01 ***
2 log likelihood	2790	2291	295	1380	973	3277
Percent correct	72	76	89	80	74	73
N	2576	2259	505	1519	920	3000

*** P≤0.001 ** P≤0.05 * P≤0.1

Note: odds ratio of predicted household income is scaled to indicate odds ratio change for every \$10,000 increase in household income. Same is true for table 4 and 5.

Table 4 continued. Logit Models of Factors Affecting Housing Tenure Choice (Immigrants and Natives Separate Analysis for Hypothesis 1)

Country of Origin	Mexico		Cuba		Dominican		Jamaica		Haiti		Natives	
Variables	ExpB		ExpB		ExpB		ExpB		ExpB		ExpB	
Now married	1.37	**	1.89	***	2.55	***	1.31	**	1.26	*	3.38	***
Never married	0.82		0.94		0.99		0.67	***	0.69	**	0.72	**
Number or own kids	1.02		0.92		0.92		0.81	***	0.90	*	1.06	
Household size	1.02		1.22	***	1.17	***	1.38	***	1.45	***	1.13	**
Predicted household income	1.20	***	1.12	***	1.23	***	1.21	***	1.18	***	1.18	***
Length of stay in the U.S.	1.69	***	2.28	***	2.23	***	1.64	***	2.20	***	2.68	***
Relative cost of owning to renting	0.00	***	0.01	***	0.52		0.11	***	0.11	***	0.57	*
Constant	0.12	**	3.86	***	0.01	***	0.46	***	0.11	***	0.01	***
2 log likelihood	4590		3369		2601		3038		2403		3277	
Percent correct	91		71		85		69		62		73	
N	5871		2981		3576		2571		2192		3000	

*** P≤0.001 ** P≤0.05 * P≤0.1

Note: odds ratio of predicted household income is scaled to indicate odds ratio change for every \$10,000 increase in household income. Same is true for Table 4 and 5.

This suggests that a slight increase in the relative cost of owning to renting will result in a substantial decrease in the probability of homeownership. This is very conceivable in that when the cost of owning becomes much more than the cost of renting, people are more likely to opt for renting, which results in a low homeownership rate for the residents for the area. Interestingly though, there is also difference in effect size and statistical significance between natives and immigrant groups. For native-born citizens, the impact of this variable is also negative but statistically significant at only 0.10 level¹⁶ while it is significant at 0.001 level for most immigrant groups. In addition, the odds ratio for the natives is 0.57, much closer to 1 than the odds ratios for the immigrant groups. This difference in effect size indicates that immigrants (except for those from Italy and India) are much more sensitive to the change in relative cost ratio than are natives.

Overall, the models did a good job predicting the homeownership rates, as indicated by the relatively large percentage of correct statistics. The percentage of correct statistics can be roughly interpreted as knowing the independent variables in each model, and the percentage of times that the model would make an accurate prediction of the actual housing tenure choice¹⁷.

Hypothesis 2. *U.S. citizen status for immigrant household heads may also be a key variable affecting housing tenure choice among immigrants. If so, the factors affecting housing tenure choice may be different across non-citizen immigrant households as a group, citizen immigrant households as a group, and native-born households as a group.* Table 5 suggests that this hypothesis is also partially supported by

¹⁶ In a strict sense, this variable is not statistically significant when a 0.05 alpha level is used as a convention. This would suggest that relative cost has no impact on homeownership of natives while it has a very strong impact on that of immigrants.

¹⁷ In all analysis models, the cutoff for percent correct is the default .50 used in SPSS software.

the analyses. In the first model where natives and citizen immigrants are combined into one sample, the results are fairly similar to those analyzing the 3,000 native households in hypothesis 1. Being married now has a very large positive impact on the probability of homeownership with an odds ratio of 3.03 while being never married has a negative impact on the probability of homeownership. Length of stay in the U.S. has a large positive impact and relative cost ratio has a strong negative impact, both statistically significant.

The statistically significant effect of the interaction term between being married and citizen status for immigrants suggests being married impacts citizen immigrants differently from the way it does natives. The smaller than 1 odds ratio suggests that married citizen immigrants are less likely to own their own homes than married native-born citizens, all others being equal. This is consistent with hypothesis 1 analysis results which indicate that being married has a huge positive impact on homeownership while it has no impact in the models for many immigrant groups.

The interaction terms between length of stay, number of own children and naturalized immigrant status are also statistically significant, but the logit coefficients are negative as suggested by the smaller than 1 odds ratios. These smaller odds ratios suggest that as the number of own children increases, the probability of owning a home for naturalized immigrants actually decreases compared to their native-born counterparts. The most interesting result in this model is the impact of the interaction term between relative cost ratio and naturalized immigrant status: it has an odds ratio of 0.36, much smaller than 1.

**Table 5. Logit Models of Factors Affecting Housing Tenure Choice
(Combined Sample Analysis for Hypothesis 2)**

	Natives and Citizen Immigrants Combined	Noncitizen and Citizen Immigrants Combined
Country of Origin Variables	Exp(B)	Exp(B)
Now married	3.03 ***	1.62 ***
Never married	0.74 ***	0.79 **
Number or own kids	0.99	0.94 **
Household size	1.17 ***	1.12 ***
Predicted household income	1.20 ***	1.19 ***
Length of stay in the U.S.	2.83 ***	2.02 ***
Relative cost of owning to renting	0.68 **	0.20 ***
citizen status of immigrant	11.21 ***	1.42
Married × citizen status of immigrant	0.53 ***	0.99
Never married × citizen status of immigrant	1.18	1.11
# of own kids × citizen status of immigrant	0.90 **	0.94 *
Household size × citizen status of immigrant	1.03	1.08 ***
Household income × citizen status of immigrant	1.00	1.00 **
Length of stay × citizen status of immigrant	0.70 ***	0.98
relative cost ratio × citizen status of immigrant	0.36 ***	1.23
Constant	0.01 ***	0.03 ***
2 log likelihood	23651	26820
Percent correct	70	73
N	20384	24973

*** P=0.001 ** P=0.05 * P=0.1

This result indicates that as relative cost of owning to renting a home increases, even naturalized immigrants are much more sensitive to this change and are much less likely to own a home as a result than their native-born counterparts.

In the second model where non-citizen immigrants and citizen immigrants are combined into one sample, the results are different from the first model. First of all, the statistically significant factors are different. Among the immigrants themselves, household size and predicted household income seem to be the only two factors that impact the probability of homeownership differently between the naturalized immigrants and non-citizen immigrants. It seems that among immigrants, the naturalized immigrants

are more likely to own homes if their household size is large and they have a higher predicted household income.

However, visual inspection of factors across the two models in Table 5 suggests some interesting differences. While being married has a large impact on homeownership in the first model (odds ratio=3.33), it is only about half the effect size in the second model (odds ratio=1.62). This difference in effect size suggests that when only immigrants are considered, the impact of marriage is not as important as it is when only U.S. citizens are considered (including naturalized immigrant citizens). Furthermore, although the number of own children does not seem to have any effect on homeownership for most of immigrant groups analyzed alone in Table 4, it has a slightly negative impact on homeownership in the two models in Table 5. This counterintuitive result may be due to the combining of all 10 immigrant groups into one, where the composition of these immigrants change in such a way that the overall group shows some difference in homeownership due to the number of own children in the household.

Overall, the model does suggest that some of the variables such as number of own kids, being married, length of stay, and relative cost ratio impact homeownership differently between native-born citizens and immigrant citizens who were not born in the United States. The second model also suggests some differences in the impacts of two variables.

Hypothesis 3. *The housing tenure choice predictors among immigrant groups may affect housing tenure choice differently among the immigrants than among the native-born population in the United States.* Table 6 provides some logistic regression results that seem to support this hypothesis fairly well. Note that in this table, each

Table 6. Logit Models of Factors Affecting Housing Tenure Choice (Immigrants and Natives Combined Sample Analysis for Hypothesis 3)

Country of Origin	China	India	Japan	Korea	Italy
Variables	ExpB	ExpB	ExpB	ExpB	ExpB
Now married	3.38 ***	3.38 ***	3.38 ***	3.38 ***	3.38 ***
Never married	0.72 **	0.72 **	0.72 **	0.72 **	0.72 **
Number or own kids	1.06	1.06	1.06	1.06	1.06
Household size	1.13 **	1.13 **	1.13 **	1.13 **	1.13 **
Predicted household income	1.18 ***	1.18 ***	1.18 ***	1.18 ***	1.18 ***
Length of stay in the U.S.	2.68 ***	2.68 ***	2.68 ***	2.68 ***	2.68 ***
Relative cost of owning to renting	0.57 *	0.57 *	0.57 *	0.57 *	0.57 *
Immigrant status	1.04	0.55	a ***	7.18 **	0.34
Married × immigrant status	0.34 ***	0.32 ***	0.72	0.21 ***	0.62
Never married × immigrant status	1.33	1.06	2.42	1.33	1.99 **
# of own kids × immigrant status	0.86	1.01	1.13	0.87	0.90
Household size × immigrant status	1.22 **	1.19 **	0.98	1.41 ***	1.22 *
Household income × immigrant status	1.00	1.00 **	1.00 **	1.00	1.00 ***
Length of stay × immigrant status	1.25	1.21	1.77 ***	1.01	1.04
relative cost ratio × immigrant status	0.61	1.64	0.01 **	0.09 ***	5.11 **
Constant	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 ***
2 log likelihood	6067	5568	3575	4657	4250
Percent correct	73	74	75	75	73
N	5576	5259	3505	4519	3920

*** P=0.001 ** P=0.05 * P=0.1

a: see explanation on page 85.

logistic model is run on the combined samples of each immigrant group and the 3,000 native-born households used for analysis in testing hypothesis 1. Here the interaction terms are between key variables and immigrant status. The results provide several observations.

First, the results across all groups suggest that some variables indeed impact immigrants differently from the ways they impact native-born citizens, indicated by the statistically significant interaction terms for each model. For example, between Chinese immigrants and natives, the impacts of marriage and household size are different between these two groups of households. Between Mexican immigrants and natives, the impacts of being never married, length of stay, and relative cost ratio are different. As long as

there are statistically significant interaction terms for each model, there are differences in the impact of some variable(s) between natives and respective immigrant groups.

**Table 6 Continued: Logit Models of Factors Affecting Housing Tenure Choice
(Immigrants and Natives Combined Sample Analysis for Hypothesis 3)**

Country of Origin	Mexico	Cuba	Dominican	Jamaica	Haiti
Variables	ExpB	ExpB	ExpB	ExpB	ExpB
Now married	3.38 ***	3.38 ***	3.38 ***	3.38 ***	3.38 ***
Never married	0.72 ***	0.72 ***	0.72 **	0.72 ***	0.72 **
Number or own kids	1.06	1.06	1.06	1.06	1.06
Household size	1.13 **	1.13 **	1.13 **	1.13 **	1.13 **
Predicted household income	1.18 ***	1.18 ***	1.18 ***	1.18 ***	1.18 ***
Length of stay in the U.S.	2.68 ***	2.68 ***	2.68 ***	2.68 ***	2.68 ***
Relative cost of owning to renting	0.57 *	0.57 *	0.57 *	0.57 *	0.57 *
Immigrant status	b ***	c ***	0.37	32.28 ***	7.49 **
Married × immigrant status	0.41 ***	0.56 **	0.75	0.39 ***	0.37 ***
Never married × immigrant status	1.13	1.29	1.36	0.92	0.95
# of own kids × immigrant status	0.96	0.87	0.86	0.76 **	0.85 *
Household size × immigrant status	0.90	1.08	1.04	1.23 **	1.28 ***
Household income × immigrant status	1.00	1.00 **	1.00	1.00	1.00
Length of stay × immigrant status	0.63 ***	0.85	0.83	0.61 ***	0.82
relative cost ratio × immigrant status	0.00 ***	0.02 ***	0.92	0.19 *	0.20 **
Constant	0.01 ***	0.01 ***	0.01 **	0.01 ***	0.01 ***
2 log likelihood	7867	6646	5878	6315	5680
Percent correct	85	72	80	71	72
N	8871	5981	6576	5571	5192

*** P=0.001 ** P=0.05 * P=0.1

b, c: see explanation on page 85.

Second, the results seem to also suggest that the differences in the impacts of key variables between natives and immigrants are different for different immigrant groups, indicated by the different statistically significant interaction terms across the 10 immigrant groups. For example, while the differences in impact mostly concentrate on variables such as being married and household size between Chinese immigrants and natives, the differences in impact come from other variables such as being never married, length of stay, and relative cost ratio between Mexican immigrants and natives.

Finally, when the interaction terms are added in the model, the main effect of immigrant status is rarely statistically significant for the immigrant groups. This result

suggests that the association between immigrant status and low homeownership is not a direct effect. Instead, the impact of immigrant status happens through endowment characteristics and/or residual effects (more detailed discussion in the next few paragraphs).

Note that in combined models for immigrants from Japan, Mexico, Cuba and even Jamaica, the dummy variable immigrant status has unusually large odds ratios. For example, the odds ratio for the Japanese immigrants and natives combined model is 106 for immigrant status. For Mexican immigrants and natives combined sample, the odds ratio is over 2 million with a logit coefficient of almost 15. Closer examination of the model suggests that the unusual result is due to the fact that the relative cost ratio variable explains too much of the homeownership differences between natives and immigrants. When this variable dominates the effect, it tends to mask the effect of other variables or inflate the effect of the dummy variable used to create all the interaction terms. The reason for this dominating effect of relative cost ratio lies in the way the sample was drawn: since the samples for immigrants were drawn after the four MSAs were selected first, then the distribution of immigrants across the four MSAs are vary uneven, thus creating samples with uneven relative cost ratio distribution. Then the end result is that for some immigrant samples, a dominate percentage of them are from one MSA where the are either predominantly renters or homeowners with the same relative cost ratio, thus distorting the model results for the immigrant status variable. To avoid this problem, future research should try to draw more representative samples of each immigrant group nationally, thus avoiding concentration of selected immigrants in one MSA where everyone share one relative cost ratio due the calculation method for this ratio variable.

Overall, the models for all 10 different immigrant groups provide good support for hypothesis 3. However, as discussed before, the drawback of this approach of analysis is that we still do not know how much a difference the interaction terms are making for each of the models in Table 6. In order to further examine the interaction terms, the differences in homeownership rates between natives and each of the immigrant groups are separated into endowment and residual effects according to the method described in the previous chapter. Table 7 provides the results.

The results reveal some interesting findings. Between Chinese immigrants and the natives, the actual difference in homeownership is only 5 percent. However, in that 5 percent difference, 3 percent is due to endowment effects¹⁸ (i.e., explained by the differences in the variables included in the analysis) while 2 out of the 5 percent actual difference is due to behavioral differences not explained by the variables included in the statistical model. So in terms of an overall assessment of the model, the model variables explain about 60% ($3\% \div 5\% = 60\%$) of the actual difference in homeownership rate between natives and Chinese immigrants.

¹⁸ In the above table, hypothetical homeownership rate is calculated using the formula described in the previous chapter. The endowment effect=actual homeownership of natives – hypothetical homeownership rate. The residual effect=actual differences in homeownership rate – endowment effects.

Table 7. Exploratory Analysis for Hypothesis 3: Separation of Endowment and Residual Effects

Country of Origin	China	India	Japan	Korea	Italy
Homeownership rate for natives	51%	51%	51%	51%	51%
Homeownership rate for immigrants	46%	39%	15%	27%	57%
Actual difference in rate	5%	12%	36%	24%	-6%
Hypothetical rate for immigrants if same parameter estimates as natives	48%	48%	23%	44%	48%
Endowment effect	3%	3%	28%	7%	3%
Residual effect	2%	10%	8%	17%	-9%

Table 7 Continued: Exploratory Analysis for Hypothesis 3: Separation of Endowment and Residual Effects

Country of Origin	Mexico	Cuba	Dominican Republic	Jamaica	Haiti
Homeownership rate for natives	51%	51%	51%	51%	51%
Homeownership rate for immigrants	26%	56%	15%	46%	38%
Actual difference in rate	25%	-5%	36%	5%	13%
Hypothetical rate for immigrants if same parameter estimates as natives	47%	43%	36%	36%	40%
Endowment effect	4%	8%	15%	15%	11%
Residual effect	20%	-13%	21%	-10%	2%

As a general rule, the large endowment effect (compared to residual effect) tends to suggest that the majority of the actual difference in homeownership between natives and each immigrant group is due to the differences in the values of the variables included in the models of Table 6. Subsequently, the large endowment effects normally suggest that the variables included in the statistical models are doing a good job explaining the differences in homeownership rate between immigrants and natives. Since residual effect is the difference between actual difference in homeownership and endowment effects, large residual effects would indicate that the variables included in the models are not doing a good job explaining the differences in homeownership rate between natives and immigrants.

For example, the actual difference in homeownership between Japanese immigrants and natives is 36 percent. But 28 out of the 36 percent is endowment effect, suggesting that the model variables explain most of the actual homeownership difference. On the other hand, the actual difference in homeownership between Mexican immigrants and natives is 25 percent. But the endowment effect is only 4 percent and the residual effect is 21 percent, implying that most of the differences in actual homeownership between natives and Mexican immigrants (21 out of 24 percent) cannot be explained by the variables included in the model in Table 6.

Note that some immigrant groups have endowment effect that is larger than the actual difference in homeownership rate between natives and immigrants, and they subsequently have negative residual effects. This result generally suggests that even though the actual difference in homeownership is small, the immigrant group could have had a larger homeownership rate if they had the same parameter estimates of the natives. For example, the actual difference in homeownership rate between natives and immigrants from Jamaica is 5 percent. But the endowment effect is 15 percent, which means that if the Jamaican immigrants had the same parameter estimates of natives described by the variables included in the model in Table 6, they would have had a homeownership rate that is much higher than the actual 46 percent calculated from the sample. But due to behavioral differences not explained by variables in the model, their homeownership rate is much lower than it actually could be.

Another way to separate endowment and residual effects is to multiply the endowment characteristics of the natives by the corresponding parameter estimates from each immigrant group. Table 8 provides the endowment and residual effect estimates.

Table 8. Exploratory Analysis for Hypothesis 3: Separation of Endowment and Residual Effects

Country of Origin	China	India	Japan	Korea	Italy
Homeownership rate for natives	51%	51%	51%	51%	51%
Homeownership rate for immigrants	46%	39%	15%	27%	57%
Actual difference in rate	5%	12%	36%	24%	-6%
Hypothetical rate for natives if same parameter estimates as immigrants	53%	48%	42%	29%	62%
Endowment effect	7%	9%	27%	1%	5%
Residual effect	-2%	3%	9%	22%	-11%

Table 8 Continued: Exploratory Analysis for Hypothesis 3: Separation of Endowment and Residual Effects

Country of Origin	Mexico	Cuba	Dominican Republic	Jamaica	Haiti
Homeownership rate for natives	51%	51%	51%	51%	51%
Homeownership rate for immigrants	26%	56%	15%	46%	38%
Actual difference in rate	25%	-5%	36%	5%	13%
Hypothetical rate for natives if same parameter estimates as immigrants	7%	69%	20%	56%	41%
Endowment effect	-19%	13%	5%	10%	3%
Residual effect	44%	-18%	31%	-5%	10%

Compared to Table 7, it is clear that the relative sizes of the endowment and residual effects stay the same for most immigrant groups, but the absolute values of the effects are quite different. Overall, it seems that the contrast between endowment and residual effects in Table 8 is more pronounced. For example, endowment effect in Table 7 is 3 percent from immigrants from China while it is 7 percent in Table 8, even though the pattern stays the same in that endowment effect is larger than residual effect, implying that variables included in the statistical model explain a better part of the actual homeownership rate difference between natives and Chinese immigrants.

To summarize, the inferential statistics from Tables 3 through 8 provide some interesting observations about the dynamics of differences between immigrants and natives, between non-citizen immigrants and citizen immigrants, between natives and non-citizen immigrants, and between natives and naturalized citizen immigrants. Several findings are especially surprising and brief explanation and/or speculation is provided in this section.

1). As Table 7 and Table 8 indicate, homeownership rates are very different among immigrants from different countries of the same region/continent. For example, Chinese immigrant households have a homeownership rate of 46 percent while Korea immigrant households have a rate of only 27 percent. What is more surprising is that Japanese immigrants have a homeownership rate of only 15 percent. There are several potential reasons for these striking differences. First, there is the different degree of representativeness of the samples for different immigrant groups selected. Previous research has well-documented the fact that many Chinese immigrants concentrate their settlement in Los Angeles, New York and Dallas, among other places. So the Chinese immigrant sample in this study is probably more representative of Chinese immigrants settled down in larger MSAs, for which previous research by Painter et al (2003) has suggested that Chinese immigrants tend to have higher homeownership rates than other immigrant groups while research by Coulson (1999) indicates that nationally, Chinese immigrants have a much lower homeownership rate, albeit still higher than many other immigrant groups. The Japanese immigrants have a homeownership rate of only 15 percent with about 500 cases in this study. This suggests that the Japanese immigrant sample may not be representative of Japanese in larger MSAs or Japanese immigrants

happen not to concentrate in the four MSAs selected for this study, thus resulting in a less representative sample for Japanese immigrants than that for Chinese immigrants. Second, the socioeconomic characteristics for different immigrant groups are quite different, which can also explain in part the remarkable differences in homeownership rate. For example, Table 1 in the previous chapter suggests that on average the length of stay for Japanese immigrants is only 7 years while it is about 12 years for Chinese immigrants. As previous literature suggested, longer length of stay is strongly associated with higher homeownership (for Chinese immigrants). Furthermore, only 9 percent of Japanese immigrants have U.S. citizenship while 49 percent of Chinese immigrants have U.S. citizenship in the samples selected for this study. The higher percentage of citizen Chinese immigrants probably contributes heavily to the higher homeownership rate for Chinese immigrants. An alternative explanation for lower citizenship rate and lower homeownership rate for Japanese immigrants may be that most Japanese immigrants do not intend to stay in the U.S. for the long term because Japan is already a developed country. There is no substantial gain in social and economic status as other immigrants from less developed countries are hoping to achieve. Then if the stay in the U.S. is only temporary in nature (such as working for a U.S. based Japanese company), they tend not to buy a house which signifies long-term commitment of stay for 20 or 30 years depending on the length of mortgage repayments. Finally, the difference in homeownership rate between Chinese and Korean immigrant households may have more to do with the difference in variables in Table 1. For example, while 27 percent of Korean immigrants are married in the sample, 46 percent of Chinese immigrants are married. As previous literature pointed out, marriage is strongly associated with homeownership and

therefore the Chinese immigrant sample in this study has a much higher homeownership rate than that of Korean immigrants.

2). Among those immigrants from Hispanic cultures, there are also striking differences in homeownership rate. For example, Tables 1, 7 and 8 indicate that the homeownership rate for those from Cuba is 56 percent while it is only 26 percent for immigrants from Mexico and 15 percent for those from Dominican Republic. The reasons for these differences may also be contributed to cultural and socioeconomic differences besides differing degree of representativeness of the different samples. Table 1 suggests that 87 percent of the Cubans are from Miami MSA, where most Cuban immigrants concentrate nationally in the United States. So the sample of Cubans may be very representative of Cuban immigrants nationally. Furthermore, Cuban immigrants are mostly Cuban “exiles” who used to face political persecutions in home country. So those immigrants may have values and beliefs that they would never go back to their own country and would have to stay in the United States permanently. Given that a house is a permanent investment, perhaps Cuban immigrants are more likely than others to have higher homeownership. Further more, the descriptive statistics in Table 1 suggest that compared to immigrants from Dominican Republic, Jamaica and Mexico, Cuban immigrants have one of the highest percentage of married households and the highest length of stay (18 years) in the United States. Therefore it is not surprising that in Tables 7 and 8, the homeownership rate for Cuban immigrants is higher because the sample used for this study contains higher percentage of married households who have been living in the United States much longer than immigrants from other Hispanic and Latino cultures/countries.

3). Note also that immigrants from Italy, the only other developed country other than Japan, have a much higher homeownership rate of 57 percent, which is actually 6 percent higher than the native-born households sample from the 4 MSAs and higher than any other immigrant groups. This difference can be explained by at least two factors. First, the negative 11 percent residual effect for Italian immigrants suggests that behavioral/cultural differences may explain the higher homeownership rate as even if they had the same endowment as those of natives, they would have had a higher homeownership rate due to other factors not included in the logistic regression model. Second, in the sample used for this study, immigrants from Italy have a much longer length of stay at 18.1 years than those from other countries. So given the cultural advantage and much longer length of stay in the United States, it is conceivable that immigrants from Italy have the highest homeownership rate than any other groups.

4). Interestingly, for immigrants from four Asian countries, namely China, Korea, India and Japan, being married does not have any statistically significant impact on homeownership while being married has a significant impact on homeownership for all other immigrant groups or natives. This difference is highly complex, potentially due to many factors. Research by Coolen et al. (2002), Listokin and Listokin (2001), Painter et al. (2003, 2004) and Ratner (1997) has alluded to some possible explanations. The first may be cultural reasons. All the above-mentioned authors alluded or implied in some way that Asian immigrants (some times called Asian Americans by the authors) tend to have certain cultural advantages in that they tend to value hard work, education for their children and financial success for themselves. Along with these values are beliefs they may sacrifice short-term gratification for long-term successes. So it is possible that Asian

immigrants, when it comes to have homeownership, tend to make a decision on long-term and other needs rather than on the needs related to being married. For example, it is much more likely to have a married Chinese couple who are able to afford homeownership financially, but choose not to buy a home for the near term because they may choose to use the financial resources for the education of their children. But in other cultures, this kind of sacrifice may not be valued and practiced as often it is in Asian cultures. Another remote factor may be immigration laws and regulations. As Martin (2003) points out, Asian immigrants are one of the fastest growing immigrant groups in the United States in recent decades. Note again that U.S. citizenship or permanent resident status has a very strong connection with homeownership even after length of stay is statistically controlled. Though difficult to quantify, it is very likely that Asian immigrants take longer to achieve permanent resident status or U.S. citizenship than other immigrant groups because the yearly number of immigrants from all countries is subjected to quotas set by the U.S. Department of State. Immigrants from China, India and Korea some times have to suffer prolonged periods than others to achieve permanent resident status due to frequent immigration processing retrogression for immigrants of Asian countries, thus delaying incentive to achieve homeownership even if they want to for reasons related to being married. Finally, previous literature has long documented the values such as delaying instant gratifications by Asian Americans/immigrants. So another reason for the lack of impact by marriage on homeownership among Asian immigrants may be due to their decision making process in which they may simply put other long-term priorities above homeownership even if their marital situation calls for homeownership.

5). Note that all of the interesting differences are not easily explainable by available theories, if these theories of housing tenure choice differences among and between immigrants exist at all. As mentioned in the literature review chapter, quantitative analysis of housing tenure choice by different immigrants is very scarce in the literature, with most researchers focusing on either minorities or treating immigrants the same as those minorities who have stayed in the United States for generations. Furthermore, theoretical explanations on the difference in homeownership rates among immigrants from different country of origin are even more scarce. The only two available ethnography studies by Ratner (1997) and Cheney and Cheney (1997) suggest that more research efforts should be directed toward uncovering the influence of cultures, values and preferences among immigrants. However, besides showing that culture background, knowledge of housing market and values have strong influence on home-buying patterns and prospects, no comprehensive theoretical guidance is given so that differences among other immigrants can be similarly explained. Furthermore, like most qualitative studies, the data coverage is local in nature and the number of immigrant groups studied is limited to only Chinese immigrants, Latin American immigrants and Indian immigrants.

6). Another strong finding in this study is the impact of U.S. citizenship status after length of stay and relative cost is statistically controlled. This finding suggests that previous literature's emphasis on length of stay may be exaggerated. The statistically significant effect of citizenship status implies that after achieving some sort of permanent stay status in the U.S., the homeownership rate of immigrants tend to accelerate even more. This finding is not surprising given that homeownership in the U.S. means a long-term mortgage and long-term commitment to the same place or even the same job.

Permanent stay status seems to provide the right catalyst for such a long-term commitment such as homeownership.

7). Finally, the overall analysis results provide much more details in the dynamics of differences among immigrants than previous literature which rarely separates immigrants from minorities, and naturalized immigrants from immigrants as a whole. This study makes several improvements in variable calculation such as relative cost ratio and length of stay. It also proves the importance of citizenship status (or any permanent resident status) in achieving homeownership for immigrant households. The next chapter will provide some conclusions and discussion of future research and policy implications of the findings.

CHAPTER VI

SUMMARY AND CONCLUSIONS

Conclusions, future research, and policy recommendations

In this final chapter, some conclusions from the study are presented. In addition, the limitations of this study and future research directions are also briefly discussed based on the findings. Finally, some tentative policy recommendations are also provided for debate and consideration.

Conclusions

1). This study, together with a small number of previous studies of housing tenure choice by immigrants, helps clear up some of the myths regarding low homeownership rates among immigrants. Although the samples used in this study are not at all representative of all the immigrants in the United States, at least for the population that the samples do represent, this study demonstrates that, to a great extent, the low homeownership rates for some immigrant groups are in part due to the definition of immigrants, the definition of minority members, and/or the inclusion of non-citizen immigrants in the samples of prior studies. The drag-down effect of very low

homeownership rate of (especially) non-citizen immigrants is difficult to decipher because the sampling techniques for most studies are very different. The findings in the previous chapter suggest that immigrants should not only be analyzed separately from either minorities or natives, but also different immigrants should be analyzed alone due to the differences in the homeownership predictors across immigrant groups from different countries of origin. Lumping them together with native-born minorities (as seen in previous literature) might have created seriously biased results.

2). On the other hand, for many immigrants from most countries, the homeownership rates are still lower than native households even for naturalized immigrants. These lower homeownership rates imply that more work is still needed to improve the housing situation for all immigrants in the population the four MSAs represent, including naturalized immigrants even though their homeownership rates are not as low as one would predict based on previous literature. The detailed reasons for these lower rates need further investigation. However, statistical models seem to suggest that the lower homeownership rates for immigrants are country-specific, with predicting factors varying across immigrant-supplying countries. Furthermore, some immigrant-specific variables may also be at work but are not included in this study because of availability problems.

3). Previous research has either ignored or underestimated the importance of permanent residence or U.S. citizenship in achieving or considering homeownership for immigrants. Previous research repeatedly indicates that length of stay in the United States is an important factor affecting housing tenure choice by immigrants, without understanding whether the length of stay in the United States interacts with permanent-

resident status or U.S. citizenship. Besides the research by Meyers et al. (1998) that briefly alludes to the real working of permanent resident status or U.S. citizenship, all other studies assume that length of stay is the important factor and the influence on housing tenure choice is uniform across time. This study indicates that length of stay may be just a variable that correlates with age; it also demonstrates that another key factor is permanent resident status, because attainment of permanent-resident status such as U.S. citizenship tends to accelerate the homeownership rates of immigrant households. So length of stay may be a redundant measure of age and not an immigrant-specific factor influencing homeownership, as indicated by the statistically significant length of stay measure among native households with similar effect size. The real factor may simply be natural aging and the attainment of some kind of permanent-resident status that opens the door for long-term investment such as owning a home.

4). The statistically insignificant effect of immigrant status after interaction terms are introduced in Table 5 seem to shed some light on the debate between Henderson and Ioannides (1986) and Wachter and Megbolugbe (1992). At least this study seems to suggest that ethnic dummy variables such as race or immigrant status may impact housing tenure choice through differences in their endowment differences although residual effects may also be in play (Table 6). Plus the reasoning of Henderson and Ioannides (1986) seems to be more conceivable in that just being black or an immigrant does not necessarily “cause” one’s homeownership situation to be different. Instead, other variables associated with being a particular race or immigrant may be the real factors affecting the housing tenure situation of that particular person.

5). The relative cost of owning and renting variables is statistically significant for most analytical models in Tables 3, 4 and 5, indicating that local housing-market characteristics have an important impact on housing tenure choice by immigrant and native households in the four MSAs. The interesting difference in the way this variable impacts housing tenure choice between natives and immigrants indicates that immigrants, either with or without U.S. citizenship, are much more easily influenced by the relative cost ratio than native-born citizens.

Future research

One weakness of this study may be that it has limited data coverage and age restriction in the sample selection. It should be noted again that the samples used for analysis in this study are not representative of the respective immigrant groups in the United States. The detailed housing tenure choice of immigrants from different countries should be further explored separately. Another possible improvement of this study is that future research should try to identify the concentrated metro areas of immigrants from the largest immigrant-supplying countries so that more focused and representative samples can be obtained for immigrants from each of the countries. Then the country-specific study will further the understanding of housing tenure choice by immigrants from different countries so that housing policies can be more sensitive to the special characteristics of immigrants from different countries of origin. The research findings of this study suggest that factors affecting housing tenure choice do differ across countries.

As Lewin (2001) suggests, older immigrants tend to have different values, preferences, and other characteristics. Therefore, their housing tenure choice may not follow the exact pattern of younger immigrants. This study does not make any attempt to

understand the housing tenure choice of elderly immigrants, thus leaving the question open how and why elderly immigrants from different countries make their housing tenure choice. More research into this area will certainly help understand and improve the housing situation of elderly immigrants in the United States.

This study partially confirms previous qualitative research findings that housing tenure choice of immigrants is not only affected by factors commonly affecting housing tenure choice of all households (native-born or foreign-born), but is also affected by country-specific and culture-specific factors that need further investigation. More statistical analysis of these factors is needed to corroborate some previous speculations and more variables measuring the specific difficulties of immigrants such as language, legal barriers (because of immigrant status), financial barriers, home-purchase knowledge, cultural values, and preferences should be included in the analysis. Quantifying the impact of these variables for immigrants from the largest immigrant-supplying countries may potentially help the current struggling affordable housing policies to increase homeownership overall and contribute to the healthy growth of the housing market in the United States. If the current immigration trend continues, immigration has and will continue to constitute the larger share of U.S. population growth. The housing market of immigrants will be the biggest share of the overall housing market that has huge growth potential.

Finally, although this study does not directly show the exact homeownership rate of immigrants who are not permanent residents yet, it can be inferred from the descriptive tables that the rate is quite low, possibly below 10 percent. Technically some of these immigrants are not exactly “immigrants”: although some of these people without

permanent-resident status are in the process of applying for one, some of them have not even started the application process yet, although most of them will apply eventually. Technically, they are not immigrants because their legal visa status is still nonimmigration in nature, such as that of visitors, students, temporary workers, etc. However, since most of them will eventually finish the application process and formally immigrate into the U.S., it is important to regard them as immigrants anyway. Plus, virtually all previous research regard them as immigrants, including probably the illegal immigrants who will never become legal settlers in the U.S. under the current law. Literature on the housing situation of these immigrants is extremely scarce. However, more understanding of the housing tenure choice of these immigrants can also potentially help the U.S. housing market. If the desire to achieve homeownership can be formed several years earlier (before the advent of permanent resident status and/or U.S. citizen status), it will help the housing market a great deal, given the size of immigration in the 1990s. Historically, homeownership trends have suggested that the overall homeownership rate does not change much. Over the past few decades, most new home purchases have to rely on population growth, not homeownership rate increase. Immigrants, at least in the 1990s, have accounted for over 60 percent of the population growth (Martin 2003) and the projected percentage is even bigger in the future. Research into the possibility of introducing and increasing homeownership for these newly arrived immigrants is much needed.

Policy recommendations

Overall, this study confirms a number of previous studies and some quantitative analysis results while it also reveals some very interesting insights into the housing tenure choice behaviors of immigrants from several countries. This study is certainly not all inclusive and the data coverage is limited. Based on the findings, a number of policy recommendations are listed for debate and consideration by scholars and policymakers in the United States.

Recommendation I. Affordable housing policies toward immigrants should be formulated differently for immigrants from those for other minorities who have been in the United States for generations because the tenure choice of immigrants follows distinct patterns that partially result from their unique life struggles. Again, one of the most serious drawbacks of previous research is that most of the studies treat all members of a minority as the same without separating the immigrant population and the native-born population of the same race or ethnicity. Some previous research and this study support the argument that first-generation immigrants are quite different in many ways and have to deal with different and more obstacles in achieving homeownership. Given the much lower homeownership rates of first-generation immigrants and special characteristics of obstacles facing them, there should be clear understanding and policy recognition of the differences among immigrant minorities, native-born minorities, and native-born majorities. Clear policy initiatives for the first-generation immigrants are necessary to boost their low homeownership rates.

Recommendation II. Affordable housing policies should be more culturally sensitive and attend to the special needs of immigrants from different countries of origin.

This study further confirms the notion that the previous assumption of immigrants being the same as other minorities is not accurate. Because first generation immigrants are caught in the middle of their home-country cultures, U.S. cultural influence and assimilation, they have special values, preferences, and needs that must be taken into consideration if their homeownership rates can be improved. The differing factors and/or varying influence of different housing tenure choice predictors across countries from even the same continent suggest that the policy attention should be country-specific, although research into the country-specific housing tenure choice of immigrants is seriously lacking for now.

Recommendation III. Lenders, real-estate agencies, and even local governments may further explore the utility of organizations or workshops that help mitigate the many special difficulties facing immigrants in achieving homeownership. This study suggests that although the household incomes for some immigrant groups are lower, they are often either as high or higher for many other immigrant groups. Then, if income—one of the key factors affecting housing tenure choice—is not a concern for many of the immigrants, it may be easier for these organizations and workshops to help accommodate for the deficiencies of other factors. The key seems to be that these “middlemen” should be more aggressive and sensitive to the difficulties facing different immigrant groups (Listokin & Listokin, 2001).

Recommendation IV. Although some concentration of immigrants tends to help them develop kinship and become a stronger force in the community, excessive concentration of immigrants does not seem to be a good thing (Galster et al. 1999) as it tends to impede the assimilation process of immigrants into U.S. society. The strong

impact of relative cost ratio and the differential effects between immigrants and natives of this variable suggest that immigrants are much more sensitive to local housing market characteristics because they tend to concentrate in expensive areas. The government may be better off to reduce the excessive concentration of immigrants in sporadic enclaves. This reduced concentration can potentially help the immigrants in many ways, including better assimilation and improving on the culture- and ethnicity-specific deficiencies that prevent them from obtaining homeownership.

Recommendation V. The low homeownership rates for immigrants cannot be fully improved without changes in immigration laws. There have been both criticisms and commendations about U.S. immigration laws. Critics blame the rapid immigration in the 1990s for contributing to the swelling of urban population in the United States (Martin, 2003). Supporters cite the remarkable contribution to the continued high-tech research and economic boom in the same time period. Good or bad, international immigration will most likely continue in the near future. However, immigration laws have created particular difficulties for immigrants to obtain homeownership, as indicated by the strong impact of length of stay and U.S. citizen status for immigrants. The complex and lengthy application procedure for permanent-resident status is nothing new. Previous research and this study have suggested that many immigrant households choose to wait until they obtain some kind of permanent-resident status before they consider homeownership, with marital status being a non-factor as it is for native-born citizens. This is understandable because home purchase is more than just obtaining a shelter, it is also a long-term investment. Furthermore, the statistically insignificant impact of marital status on homeownership for most immigrant groups seems to suggest that the natural need for

owner-occupied housing generated by marriage is not sufficient to have an impact on the immigrants' decision to buy homes. It is unlikely that an immigrant without any certainty of long-term stay in the United States will easily have the desire to buy a house just because affordability is not a problem. Although the degree to which this kind of hesitation is limiting the homeownership rate of new immigrants still needs further investigation, it is clear that the U.S. government may have to invest in the speedy processing of immigration applications if the slowing effect of age or length-of-stay factor is to be reduced. The 2000 census suggests that about 10 percent of the population in the United States is foreign-born. There will be a potentially significant loss in housing market growth if the U.S. housing policies ignore this 10 percent of population which offers the best potential to increase homeownership and contribute to the growth of the housing market in the United States.

REFERENCES

- Abramsson, Marianne, Borgegard and Lars-Erik, Fransson. 2002. Housing Careers: Immigrants in Local Swedish Housing Markets. *Housing Studies*. 17. 3. 445-464.
- Anas, Alex and Arnott, Richard J. 1994. The Chicago Prototype Housing Market Model with Tenure Choice and Its Policy Applications. *Journal of Housing Research*. 5. 1. page?.
- Azen Krause, Corinne. 1994. Immigrant Family Patterns: Demography, Fertility, Housing, Kinship, and Urban Life, Vol. 11, Edited by George E. Pozzetta. *Journal of American Ethnic History*. 13. 3.
- Boehm, Thomas P. 1981. Tenure Choice and Expected Mobility: A Synthesis. *Journal of Urban Economics*. 10. 3. 375-389.
- Borjas, George J. 2002. Homeownership in the Immigrant Population. *Journal of Urban Economics*. 52. 3. 448-476.
- Bourassa, Steven C. 1994. Immigration and Housing Tenure Choice in Australia. *Journal of Housing Research*. 5. 1. 117-136.
- Bourassa, Steven C. 1995. A Model of Housing Tenure Choice in Australia. *Journal of Urban Economics*. 37. 2. 161-175.
- Bourassa, Steven C. 2000. Ethnicity, Endogeneity and Housing Tenure Choice. *Journal of Real Estate Finance and Economics*. 20. 3. 323-341.
- Center for Housing Policy Study. 2003. America's Newest Working Families: Cost, Crowding, and Conditions for Immigrants. 4. 3.
- Cheney, Susan A. and Cheney, Charles C. 1997. Adaptation and Homebuying Approaches of Latin American and Indian Immigrants in Montgomery County, Maryland. *Cityscape: A Journal of Policy Development and Research*. 3. 1. 39-61.
- Chow, Clement K. W. et al. 2001. Consumption Patters of Entrepreneurs in the People's Republic of China. *Journal of Business Research*. 52. 189-202.

Coolen, Henny, Boelhouwer, Peter and Van Driel, Kees. 2002. Values and Goals as Determinants of Intended Tenure Choice. *Journal of Housing and the Built Environment*. 17. 3. 215-236.

Coulson, N. Edward. 1999. Why are Hispanic- and Asian-American Homeownership Rates so Low: Immigration and Other Factors. *Journal of Urban Economics*. 45. 2. 209-227.

Coulson, N. Edward and Fisher, Lynn. 2002. Tenure Choice and Labor Market Outcomes. *Housing Studies*. 17. 1. 35-49.

Danso, R. K. and Grant, M. R. 2000. Access to Housing as an Adaptive Strategy for Immigrant Groups: Africans in Calgary. *Canadian Ethnic Studies*. 32. 3. 19-43.

Di Salvo, Pamela and Ermisch, John. 1997. Analysis of the Dynamics of Housing Tenure Choice in Britain. *Journal of Urban Economics*. 42. 1. 1-17.

Esses, Victoria M., Dovidio, John F, and Dion, Kenneth L. 2001. Immigrants and Immigration—Immigration Perspectives and Adaptations—immigrants' Perceptions of Housing Discrimination in Toronto: The Housing New Canadians Project. *Journal of Social Issues*. 57. 3. 523-531.

Flippen, Chenoa. 2001. Residential Segregation and Minority Home Ownership. *Social Science Research*. 30. 3. 337-362.

Friedman, Samantha, Schill, Michael H. and Rosenbaum, Emily. 1999. The Use of Rental Housing Assistance by Immigrants in the United States and New York City. *Housing Policy Debate*. 10. 2. 443-475.

Fu, Yuming; Tse, David K. and Zhou, Nan. 2000. Housing Choice Behavior of Urban Workers in China's Transition to a Housing Market. *Journal of Urban Economics*. 47. 61-87.

Galster, George C., Metzger, Kurt and Waite, Ruth. 1999. Neighborhood Opportunity Structures and Immigrants' Socioeconomic Advancement. *Journal of Housing Research*. 10. 1. 95-127.

Goodman, Allen C. 1988. An Econometric Model of Housing Price, Permanent Income, Tenure Choice and Housing Demand. *Journal of Urban Economics*. 23. 3. 327-353.

Green, Richard K. 2001. Homeowning, Social Outcomes, Tenure Choice and U.S. Housing Policy. *Cityscape: A Journal of Policy Development and Research*. 5. 2. 21-29.

Gyourko, Joseph and Linneman, Peter. 1997. The Changing Influences of Education, Income, Family Structure and Race on Homeownership by Age Over Time. *Journal of Housing Research*. 8. 1. 1-25.

- Henderson, J. Vernon and Ionnides, Yannis M. 1986. Tenure Choice and the Demand of Housing. *Economica*. 53. 210. 231-246.
- Hendershott, Patric H. and Won, Yunhi. 1992. Introducing Risky Housing and Endogenous Tenure Choice into a Portfolio-based General Equilibrium Model. *Journal of Public Economics*. 48. 3. page?
- Henley, Andrew. 1998. Residential Mobility, Housing Equity and the Labor Market. *Economic Journal*. 108. 447. 414-427.
- Hsueh, Li-Min and Chen, Hsiu-Li. 1999. An Analysis of Home-Ownership Rate Changes in Taiwan in the 1980s. *Asian Economic Journal*. 13. 4. 367-388.
- Huang, Youqin and Clark, William A.V. 2002. Housing Tenure Choice in Transitional Urban China: a Multilevel Analysis. *Journal of Planning Literature*. 16. 4. 561-643.
- Jones, Lawrence. 1989. Current Wealth and Tenure Choice. *American Real Estate and Urban Economics Association Journal*. 17. 1. 17-40.
- Kan, Kamhon. 2000. Dynamic Modeling of Housing Tenure Choice. *Journal Urban Economics*. 48. 1. 46-69.
- Kauppinen, Timo M. 2002. The Beginning of Immigrant Settlement in the Helsinki Metropolitan Area and the Role of Social Housing. *Journal of Housing and the Built Environment*. 17. 2. 173-197.
- Kemper, Franz-Josef. 1998. Restructuring of Housing and Ethnic Segregation: Recent Developments in Berlin. *Urban Studies*. 35. 10. 1765-1789.
- Kent, Richard J. 1984. Housing Tenure Choice: Evidence from Time Series. *Journal of Urban Economics*. 15. 2. 195-209.
- Knight, John R. and Eakin, Cynthia Firey. 1998. A New Look at the Home Ownership Decision. *Real Estate Issues*. 23. 2. page?
- Krivo, Lauren J. 1995. Immigrant Characteristics and Hispanic-Anglo Housing Inequality. *Demography*. 32. 4. 599-607.
- Ioannides, Yannis M and Kan, Kamhon. 1996. Structural Estimation of Residential Mobility and Housing Tenure Choice. *Journal of Regional Science*. 36. 3. 335-365.
- Lee, James. 2000 From Welfare to Home Ownership: The Dilemma of China's Housing Reform. *Housing Studies*. 15. 1. 61-77.

- Lee, Seong Woo and Meyers, Dowell. 2003. Local Housing-market Effects on Tenure Choice. *Journal of Housing and the Built Environment*. 18. 2. 129-157.
- Lewin, Fereshteh Ahmadi. 2001. The Meaning of Home among Elderly Immigrants: Directions for Future Research and Theoretical Development. *Housing Studies*. 16. 3. 357-370.
- Li, Si-Ming. 2000. The Housing Market and Tenure Decisions in Chinese Cities: A Multivariate Analysis of the Case of Guangzhou. *Housing Studies*. 15. 2. 213-236.
- Listokin, D. and Listokin, B. 2001. Asian Americans for Equality: A Case Study of Strategies for Expanding Immigrant Homeownership. *Housing Policy Debate*. 12. 1. 47-76.
- Logan, John. R. and Bian, Fuqin. 1999. Housing Inequality in Urban China in the 1990s. *International Journal of Urban and Regional Research*. 23. 1. 7-25.
- Martin, Jack. 2003. Urban Bloat: How Immigration Fuels Urban Population Growth. Article from <http://www.mnforsustain.org/index.htm>.
- Masnick, George S. 2002. The New Demographics of Housing. *Housing Policy Debate*. 13. 2. 275-321.
- McArdle, Nancy. 1997. Homeownership Attainment of New Jersey Immigrants. *Keys to Successful Immigration: Implications of the New Jersey Experience*. 337-374. Washington, D. C. Urban Institute Press.
- Mills, Edwin S. 1990. Housing Tenure Choice. *Journal of Real Estate Finance and Economics*. 3. 4. 323-331.
- Meyers, Dowell and Park, Julie. 1999. The Role of Occupational Achievement in Homeownership Attainment by Immigrants and Native Borns in Five Metropolitan Areas. *Journal of Housing Research*. 10. 1. 61-93.
- Meyers, Dowell and Lee Seong Woo. 1996. Immigration Cohorts and Residential Overcrowding in Southern California. *Demography*. 33. 1. 51-65.
- Meyers, Dowell, Megbolugbe Isaac and Lee, Seongwoo. 1998. Cohort Estimation of Homeownership Attainment among Native-Born and Immigrant Populations. *Journal of Housing Research*. 9. 2. 237-269.
- National Housing Conference. 2002. Strengthening Neighborhoods by Creating Long-Term Multifamily Assets. *NHC Affordable Housing Policy Review*. 2. 2.
- Newbold, K. Bruce. 1999. Spatial Distribution and Redistribution of Immigrants in the Metropolitan United States, 1980 and 1990. *Economic Geography*. 75. 3. 254-271.

- Newbold, K. Bruce and Spindler, John. 2001. Immigrant Settlement Patterns in Metropolitan Chicago. *Urban Studies*. 38. 11. 1903-1919.
- Ortalo-Magn E and Rady, Sven. 2002. Tenure Choice and the Riskiness of Non-housing Consumption. *Journal of Housing Economics*. 11. 3. 266-279.
- Painter, Gary. 2000. Tenure Choice with Sample Selection: Differences among Alternative Samples. *Journal of Housing Economics*. 9. 3. 197-213.
- Painter, Gary, Gabriel, Stuart and Meyers, Dowell. 2001. Race, Immigrant Status, and Housing Tenure Choice. *Journal of Urban Economics*. 49. 150-167.
- Painter, Gary, Yang, Lihong and Yu, Zhou. 2003. Heterogeneity in Asian American Home-Ownership: The Impact of Household Endowments and Immigrant Status. *Urban Studies*. 40. 3. 505-530.
- Painter, Gary, Yang, Lihong and Yu, Zhou. 2004. Homeownership Determinants for Chinese Americans: Assimilation, Ethnic Concentration and Nativity. *Real Estate Economics*. 32. 3. 509-539.
- Park, J. 1996. Minority Ethnic Communities' Access to Shared Ownership. *Housing Review*. 45. 1. page?
- Passmore, J. 2001. Shared Ownership Housing Could Work Better for the Minority Ethnic Community. *Housing*. 32. 2.
- Pickles, Andrew and Davies, Richard B. 1986. Household Factors and Discrimination in Housing Consumption: Further Developments in the Analysis of Tenure Choice within Housing Careers. *Regional Science and Urban Economics*. 16. 4. 493-517.
- Ratner, Mitchell. 1997. Ethnographic Studies of Homeownership and Home Mortgage Financing: An Introduction. *Cityscape: A Journal of Policy Development and Research*. 3. 1. 1-11.
- Ratner, Mitchell S. 1996. Many Routes to Homeownership: A four-Site Ethnographic Study of Minority and Immigrant Experiences. *Housing Policy Debate*. 7. 1. 103-145.
- Ray, Brian. 1994. Immigrant Settlement and Housing in Metropolitan Toronto. *The Canadian Geographer*. 38. 3. page?
- Robst, John, Deitz, Richard and McGoldrick, KimMarie. 1999. Income Variability, Uncertainty, and Housing Tenure Choice. *Regional Science and Urban Economics*. 29. 2. 219-231.

- Rosenbaum, Emily and Friedman, Samantha. 2001. Differences in the Locational Attainment of Immigrant and Native-Born Households with Children in New York City. *Demography*. 38. 3. 337-348.
- Rosenbaum, Emily and Schill, Michael H. Housing and Neighborhood Turnover Among Immigrant and Native-born Households in New York City, 1991-1996. 1999. *Journal of Planning Literature*. 15. 1.
- Schill, Michael H. Friedman, Samantha and Rosenbaum, Emily. 1998. The Housing Conditions of Immigrants in New York City. *Journal of Housing Research*. 9. 2. 201-235.
- Takase, M. 1995. Econometric Estimation for a Model with Dynamic Housing Tenure Choice. *Mathematics and Computers in Simulation*. 39. 3-4. 359-367.
- U.S. Bureau of Census. Moving to America - Moving to Homeownership: 1994 to 2002. 2003. <http://www.census.gov/hhes/www/movingtoamerica2002.html>.
- U.S. Bureau of Census. Moving to America - Moving to Homeownership. 1997. <http://www.census.gov/prod/3/97pubs/h121-972.pdf>.
- Van, Vliet, W. 1996. Sustainable Development, Global Restructuring and Immigrant Housing. *Habitat International*. 20. 3. page?
- VanderHart, P.G. 2002. The Tenure Choice of the Migrating Elderly. *Journal of Housing for the Elderly*. 16. ½. 19-38.
- Watcher, Susan M. and Megbolugbe, Issac F. 1992. Racial and Ethnic Disparities in Homeownership. *Housing Policy Debate*. 3. 333-371.
- White, Paul and Hurdley, Louise. 2003. International Migration and the Housing Market: Japanese Corporate Movers in London. *Urban Studies*. 40. 4. 687-706.

CURRICULLUM VITAE

NAME: Zhenfeng Pan

ADDRESS: School of Urban and Public Affairs
426 West Bloom St.
University of Louisville
Louisville, KY 40292

DOB: Mengzhou, Henan, China – May 16, 1974

EDUCATION
& TRAINING:

B.A. English
Zhengzhou University
1993-1996

M.A. Sociology
University of Louisville
1997-1999

Ph.D. Urban and Public Affairs
University of Louisville
2001-2005

PUBLICATIONS:

1. Why Rents Rise in the United States (book chapter in *Invisible City: Power, Planning and Poverty* by Dr. John I. Gilderbloom, State University of New York Press. 2005).
2. The Nursing Home Crisis in the United States (book chapter in *Invisible City: Power, Planning and Poverty* by Dr. John I. Gilderbloom, State University of New York Press. 2005).
3. Pan, Zhenfeng. 2003. Housing Quality Differentials in Urban China 1988-1995: Evidence from Two National Surveys. *International Journal of Social Economics*. 30. 10. 1070-1083.
4. Pan, Zhenfeng. 2004. Commercial Housing Ownership in Urban China: An Analysis of a National Survey. *Construction Management and Economics*. 22. 1. 85-91.

5. Pan, Zhenfeng. 2004. Housing Quality of Communist Party Members in Urban China: A Comparative Study. *Housing Studies*. 19. 2. 194-206.
6. Pan, Zhenfeng. 2004. Socioeconomic Predictor of Smoking and Daily Smoking Frequency in Urban China: Evidence of Smoking as an Important Social Function. *Health Promotion International*. 19. 2. 309-314.
7. Strothers, Stu, Koven, Steven G. Howarth, David and Pan, Zhenfeng. Building Human Capital through Public-Private Cooperation: the Case of Metropolitan College. *Economic Development Quarterly*. F.
8. Gilderbloom, John I., Brazley, Michael and Pan, Zhenfeng. 2004. Hope VI: A Study of Housing and Neighborhood Satisfaction. *Sustain: A Journal of Environment and Sustainability Issues*. 11.